Life is Precious.
Buckle Them In.

CCMTA National Edition

child restraint manual

Alberta
TRANSPORTATION
SAFETY BRANCH

LIFE IS PRECIOUS.

BUCKLE THEM IN.

A Manual on Child Restraint Systems, for use by health care professionals, educators, community groups and organizers of rental programs

Acknowledgement

In 1980, Saskatchewan became the first province in Canada to require that children be properly restrained in motor vehicles. Similar laws have been subsequently passed in Quebec, Newfoundland and Ontario. As pioneers in this field, Saskatchewan developed a manual on child restraints which served as a model for future activity in the area of child occupant protection.

The first edition of "Life is Precious. Buckle Them In" was prepared, published and distributed by the Ontario Ministry of Transportation and Communications. The Canadian Conference of Motor Transport Administrators (CCMTA) would like to thank the Ministry for its approval and assistance in revising the manual for use in all regions of the country.

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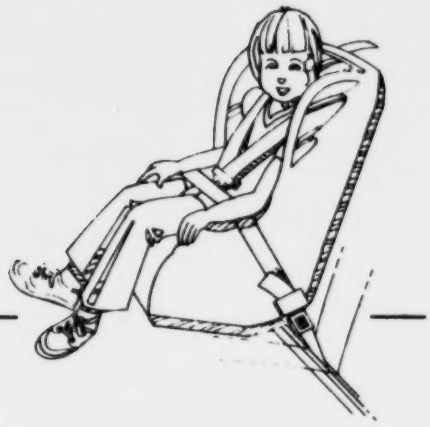


1. introduction

Introduction

The purpose of this manual is to provide information on the proper use of child restraint seats and seat belts in automobiles. It contains diagrams, background papers, answers to questions, presentation outlines, and step-by-step demonstration techniques. Educators may use this material to convince adults of the need for, and effectiveness of, buckling in both themselves and their children, even for a short trip.

The confidence with which the subject is presented will grow with personal knowledge. It was therefore felt that discussion of the factors involved in a crash situation, some reports of actual collisions, the description of a child's special vulnerability and other topics would benefit the educator. Without an understanding of the "human collision" it is difficult to persuade people to use restraints in a vehicle, either for themselves or for a child. The collision reports give concrete evidence of the effectiveness of restraint systems.

Collision statistics are the bare numbers behind which the trauma suffered by the family is hidden. For example, in a crash situation an unrestrained infant may be thrown from the mother's arms through the windshield and suffer brain damage. One entry is made on a computer file, yet for the rest of its life that child may remain in a brain-damaged state, requiring constant care. The life of the family is forever changed. The tragedy is that the injury and all its consequences may have been prevented if the child's parents had been convinced of the value of a child restraint seat, and used one.

Much research and the dedication of the medical profession have successfully eliminated or reduced sickness and death from many of the serious childhood diseases through such things as immunization, good sanitation and public education. Similarly, bio-medical technology now has reached the stage of producing child restraint seats that provide effective protection in crashes. It is time for those who guide adults in the care of children to put more emphasis on educating and encouraging people to make use of child restraints.

The various sections of the manual can be used in many different situations. For example, the demonstration methods are needed for the loaner or rental program, as well as the pre-natal and parenting classes. The discussion points on the film "Life is Precious" are planned for use in a workshop for professionals, as well as in pre-natal classes, on the maternity ward, and at parenting classes. Other audio-visual materials are listed in the resource guide, so that the material most suitable for the audience, time, and equipment available can be selected.

There are a dozen or so child restraint seats currently on the market and more will probably become available, but the basic design criteria are not expected to change. Rather than discuss particular seats, the section on types of seats presents the functions, advantages, and disadvantages of the seat components. This understanding can then be applied to any seat on the market.

One section is devoted to organizing a rental program to provide the community with low cost restraints and with education on their use. This is a valuable public service whereby the parents of infants are motivated to use an infant restraint through being able to rent it inexpensively for the six to nine month period it is needed.

"There is no single greater challenge, in terms of numbers at risk for crippling and fatality, facing the medical profession today than that produced by automotive trauma. This is

particularly true since the causes are well defined, the mechanisms well understood, and the preventive measures so easily and well applied. Where these considerations have been judiciously and uniformly applied, the resulting prevention of death and injury has had an excellent track record. Child restraint systems, when properly used, can reduce fatalities by approximately 90 per cent, and crippling injuries by 65-70 per cent".[1]

1. R. Scherz, "Restraint Systems for the Prevention of Injury to Children in Automobile Accidents" "American Journal of Public Health" Vol. 66, 1976, P. 451. Quoted by H. James Holroyd, MD., F.A.A.A.P., Chairman, Committee on Accident and Poison Prevention, American Academy of Pediatrics, "The Pediatrician and Automobile Passenger Trauma Prevention", The Human Collision: International Symposium on Occupant Restraint, Toronto, June 1-3, 1981, p. 120.

Life is Precious.
Buckle Them In.

2. background information

Background Information

The Human Collision

In a motor vehicle collision, there are two kinds of collision. The first is the car's collision when it hits something, then buckles and bends as it's brought to a stop. The second is the "human collision", when a person hits parts of the car and/or the other passengers. This is the collision that causes the injury.

In a collision the car begins to crush and slow down, but an unrestrained person has nothing to stop him so he continues to move forward at the car's original speed. In a fraction of a second, he is smashing into the car interior or being ejected onto the roadway. The force of the impact has been likened to being dropped from a third floor window.

Unrestrained Passengers Injure Others

In a motor vehicle collision passengers tend to move towards the point of impact. Unrestrained people can cause injuries as their weight forces the passenger next to them into the door or out of the window. The young child sitting on a lap is especially vulnerable to this type of "human collision", as the adult's weight crushes it against the dashboard or seat back. This can occur even when the adult is wearing a seat belt.

Arms Are Not Strong Enough

In a series of tests at the Highway Safety Research Institute in Michigan, male and female adult volunteers were safely fastened to a seat with lap and shoulder belts. Each volunteer held a 7.9 kg (17 lb.) dummy which represented, in size and weight, a six-month-old baby. The volunteers were then tested for their ability to clasp the infant dummy against varying types of force. In a simulation of the forces of a 24 km/h impact, not one of the volunteers was able to hold onto the "baby". Even when they knew the precise moment of simulated impact and used all their strength, the babies were ripped from their arms again and again.

Testing Procedures

Research results based on impact-sled crashes, on-the-scene collision investigations, and collision records, show that restraint systems such as seat belts and child restraint seats reduce injuries. In controlled impact-sled crashes, dummies built to approximate the human body are placed in typical riding positions in a car. The crash is photographed with high-speed motion picture cameras; instruments in the dummies measure the forces on the dummy. Dummies representing infants and children are also tested in child restraints. The simulated crashes show the action of the seat, its weaknesses and strengths in protecting the child, and so valuable knowledge is gained providing a basis for technological advances.

Collision reports such as those reproduced on the following pages are also used to evaluate child restraints. In a study conducted by researchers at the University of Michigan, 214 crashes were screened and 16 chosen for detailed investigation. The study concluded that, "Child restraints that meet dynamic test criteria similar to those of the revised Federal Motor Vehicle Safety Standard 213 provide excellent injury protection when properly used and still provide adequate protection, even in severe crashes, in some misuse modes."

Researchers at the California Medical Center at Irvine, California, conducted a 21-month investigation of children who required emergency room treatment after motor vehicle

incidents. They found that nearly 25 per cent of the injuries resulted from non-crash incidents such as sudden stops, swerves, or turns, or from the child's movement within the vehicle. Thus it is evident that restraints should be used not just because of the possibility of a crash, but also because the car is generally an unsafe environment.

Restraints Reduce Mortality and Morbidity

During a period from 1970-1979, a study of motor vehicle accidents involving children was conducted in the State of Washington. It concluded that if all children involved had been wearing restraints there would have been 93 per cent fewer deaths. The fatal collisions involving young children occurred under ordinary circumstances on dry roads, at low speeds during daylight hours and were unrelated to alcohol usage. During the last ten years, the study states: "no child passengers less than one year of age who were restrained at the time of the accident, died. Furthermore, no children aged zero to four years who were restrained in the back seat of a vehicle, died."[1]

Conclusion

On the whole these studies indicate that although no one can control all the factors involved in a motor vehicle incident, restraint systems used correctly reduce the risk of serious injury to anyone travelling in the vehicle.

The small infant that cannot sit alone is unable to use a seat belt and is in potential danger travelling on an adult lap. Infants under 9 kg (20 lb.) should travel harnessed into a rear-facing child restraint seat that meets the standards (Canadian Motor Vehicle Safety Standard 213.1) and is fastened to the vehicle by the seat belt.

The older child can be restrained by a lap belt, but with a child restraint seat has additional protection and is more comfortable. Therefore, the 9-18 kg (20-40 lb.) child should be harnessed into a forward-facing restraint seat that meets federal standards, and is attached to the vehicle by the seat belt. These child seats require the installation of a tether strap for maximum safety.

Most child restraint seats are outgrown when the child reaches 18 kg (40 lb.). The child is then large enough to wear the lap belt comfortably on all trips. If the shoulder harness portion cuts across the neck, it can be tucked behind the child until he or she reaches 23 kg (50 lb.).

For small children who have outgrown their safety seat, a booster seat can be used. These seats will improve their view and help to position the lap belt properly over the hips. Booster seats meeting federal government safety regulations will be available for sale in Canada in 1983.

1. Robert G. Scherz. "Pediatrics", vol, 68. No. 4. October 1981.

Collision Report Studies

The following studies are reprinted with permission from:

"Investigation of the Performance of Child Restraints in Serious Crashes" John W. Melvin, Kathleen Weber, Paula Lux

Highway Safety Research Institute,
The University of Michigan,
Ann Arbor, Michigan UM-HSRI-80-12

Abstract

The purpose of the project was to investigate the performance of child restraints in actual crashes. Timely notification of crashes in which a child restraint was used was solicited from state and national agencies and other organizations concerned with vehicle occupant protection.

Notifications of 214 crashes were received and 16 of these were investigated in depth at the crash locale. These cases are described in detail and evaluations of the effectiveness of specific child restraints, used in specific ways in these crashes, are made. Two of the crashes were judged to be close in crash configuration and severity to laboratory dynamic test conditions.

Conclusions of the study are as follows:

(1) severe frontal crashes in which a child is properly harnessed in a properly secured child restraint are rare events;

(2) child restraints that only meet static test criteria provide some injury protection in less severe crashes;

(3) child restraints that meet dynamic test criteria provide excellent injury protection when used properly and still provide adequate protection in some misuse modes; and

(4) further work is needed with respect to both vehicle structures and child restraint design to provide better side impact protection for children.

Case 2-102

A '75 Ford Torino, slowing from 80 km/h, turned left into the path of a '78 Dodge pick-up truck travelling at 80 km/h.

Child restraint: Strolee Wee Care

Child restraint usage and performance: An 8-month-old child was harnessed in a forward-facing child restraint in the centre front position. The restraint was secured with the vehicle lap belt, and the tether was wrapped tightly around the right front seat head restraint. Due to the tether attachment, the child restraint rotated forward during the crash but returned to the upright position. Otherwise the restraint functioned properly.

Injuries: The child was not injured.

Comments: In spite of the inadequate tether anchorage, the restraint prevented the child from contacting the vehicle interior and thus performed adequately in this moderately severe crash.

Case 2-10

A '76 Peugeot was travelling on a roadway with a designated speed of 72 km/h, when a '71 Mustang crossed the centre line and crashed head-on into the Peugeot.

Child restraint: General Motors Child Love Seat

Child restraint usage and performance: A 2-year-old child was harnessed in a forward-facing child restraint in the right rear position. The restraint was secured to the car with the lap belt, and the top tether was threaded behind the rear seatback and anchored to the right rear wheel well. Impact forces cracked the plastic shell in several places, but the child was well protected by the restraint.

Injuries: The 2-year-old in the child restraint was uninjured. The restrained adults in the front seat suffered various fractures requiring hospitalization. A 4-year-old child, restrained by a lap belt in the left rear, sustained a fractured pelvis.

Comments: This very severe frontal crash is comparable to simulated laboratory test conditions. The top tether was anchored atypically, allowing more strap length and resulting in more forward motion than usual upon impact. The restraint performed effectively although the shell was cracked. The cracking could have been due to the unusual tether strap routing and/or the possible aging (4 years) of the plastic. In addition, in preventing a serious head injury to the 4-year-old, the lap belt demonstrated its effectiveness as a restraint system for young children. The pelvic injury could probably have been avoided had an upper torso harness or a child restraint been used.

Case 2-57

A '74 Toyota was struck on the left side by a '78 GM pick-up truck, which was travelling about 80 km/h and had entered the intersection against a red light.

Child restraint: Dorel (Canadian manufacturer) with top tether.

Child restraint usage and performance: A 16-month-old child was harnessed in a forward-facing child restraint in the left rear position. The restraint was secured by wrapping the lap belt twice around the lower rear portion of the tubular frame. Threading the belt once through a higher slot is recommended by the manufacturer. The child was being transported in a vehicle other than his parents', and no anchorage was available for the top tether. The vehicle side panel impacted the child restraint at the front left, bending the tubular base and crushing the left front corner of the plastic shell. Considering the level of intrusion, the child restraint functioned well, although the child's arm was trapped between the restraint and the vehicle interior. The unorthodox method of securing the child restraint was probably due to the driver's unfamiliarity with the system but was not likely to have affected its performance in this crash.

Injuries: The child was unconscious after the accident and sustained a broken left arm and facial lacerations from broken glass. The restrained driver sustained fatal internal injuries, and the other occupants sustained various minor injuries.

Comments: This was a severe near-side impact in which the position of the restraint just behind the central point of contact was critical. The child suffered injuries from interior intrusion, but probably not from direct impact with the striking vehicle. Although the tether was not anchored, the restraint was effective in preventing possibly fatal interactions between the child and the intruding interior and striking vehicle. It appears that the lower side wings protected the child against leg and pelvic injury.

Case 2-99

The driver of a '71 Buick Skylark had an epileptic seizure, crossed the centre line, and ran head-on into a tractor semi-trailer. Each vehicle had been travelling about 64 km/h.

Child restraint: General Motors Infant Love Seat

Child restraint usage and performance: A 4-month-old child was in a rear-facing infant restraint in the centre front position. The restraint was properly secured by the vehicle lap belt, although the belt may have been somewhat loose. (Extensive stretching of the belt occurred.) The harness had been dismantled and was underneath the child. Upon impact the top of the restraint rotated forward and contacted the dash. In addition, the plastic welds between the inner and outer shells broke, but the shells remained in place during the crash. The restraint functioned properly despite improper usage.

Injuries: The child was not injured. Minor injuries were sustained by the lap-belted driver.

Comments: In this moderately severe frontal crash, the effectiveness of the rear-facing position, even without the use of the harness, was demonstrated. The forward rotation of the infant restraint was limited by the dashboard, thus minimizing the need for the harness.

The Child's Special Needs

Unrestrained Movement

An unrestrained child is travelling in potential danger in any position in a vehicle. In an accident or sudden stop, a young child, unrestrained in the rear of the vehicle, has a tendency to move forward, striking the back of the front seat with legs or knees. In a rear collision, children travelling in the cargo area of hatchbacks or station wagons can catapult through the rear window, or hit the interior of the vehicle. Cargo areas of pick-up trucks, vans and station wagons offer no protection to the unrestrained passenger. Moreover, they often contain bulky items that, when hurled about by the forces of the crash, can cause injury.

Children standing or sitting on the front seat tend to be propelled forward into the dashboard or windshield. Because of their size, children often do not benefit from the energy absorbing parts of the automobile interior. They can also be ejected through the windows or doors to collide with other vehicles and the pavement.

Injuries also occur through collision with unrestrained adults, pets or loose items which on impact move about with force inside the car. It should be noted that the child restraint seat can become a danger in itself, unless it is buckled down to the car at all times.

The Fetus

Starting at conception and through its early years, the child, by its unique physical structure, has special protection needs in a vehicle. In motor vehicle collisions the leading cause of fetal death is maternal death, so from conception to birth the child's main protection within the car is derived from the mother's actions to protect herself. The mother creates a "child restraint" through her bones, fluid and muscle, holding the child securely within its natural protection. A lap belt worn low on the pelvic bones increases the chance of survival and reduces the chances of serious injury to both herself and the unborn child. By maintaining the torso in an upright position with the stress away from the womb, the shoulder harness gives an additional measure of protection.

The Child's Head and Neck

The size and weight of an infant's head in relation to its torso are greater than those of an adult. The bones of the cranial vault are soft and pliable, full ossification not being reached until about 17 months.

When you compare a professional football player's neck with that of a child it is obvious that the child's neck has weaker ligaments and muscles and a shorter skeletal structure than an adult's, with a subsequent decreased ability to control and support the proportionately heavier head.

These factors cause the child's head to be more vulnerable and less resistant to impact than an adult's. With the greater proportionate weight of the child's head relative to its hips, the centre of gravity is higher than that of an adult, tending to propel the child forward. Because of their lower height on the vehicle seat children are more likely than adults to have face and head contact with the dashboard and front seat backs. Severe head injuries can cause death or result in brain damage causing learning and social impairments, and/or physical disabilities, resulting in the need for long-term care.

Child Restraint Seat Design: Head Protection

To avoid possible impacts between the child and the vehicle or other passengers, child restraint seats (CRS) are designed to limit head movement. Some types of CRS are designed with padded side wings offering some side impact protection. Although in most crashes the child's head is thrown forward, in a side impact this kind of protection can be important. The main function of the padded wings is to provide a comfortable place for the child to rest its head during the trip. The best protection from side impact is to have the CRS positioned in the centre of the rear seat well away from the sides of the car.

The tether strap, (see diagrams pages 2.13, 2.14 and 2.15) is also an important design feature of the CRS as it maintains the seat in an upright position, helping to reduce the forward movement of the head and upper torso.

Child Restraint Seat Design: Body Protection

The rib cage of an infant is thinner and more elastic than an adult's. Neither it, nor the prominent abdomen, offer much protection to the proportionately larger internal organs during impact.

The iliac crests, which are prominent in the adult pelvis, are underdeveloped in the child's until the age of 9 or 10 years. The child's pelvis is also relatively smaller, and both these factors add to the difficulty of maintaining the lap belt low on the pelvis, away from the vulnerable abdomen. This is the reason for the crotch strap in the CRS harness, to position the harness on the pelvis.

The wide straps of the harness across the shoulders, chest, over the hips and between the legs spread the forces of the collision evenly over the strongest parts of the body. The crotch strap also prevents the child from "submarining", i.e. slipping down and out of the harness.

The rigid structure of the CRS surrounding the body offers some protection from the intrusion of solid objects against the body. Since the body is restrained, the child is prevented from striking the surrounding hazards of the car interior.

Child Restraint Seats are Designed to Meet the Specific Physical Needs of the Young Child

— large heavy head

— high centre of gravity

— soft bone structure

— short legs

— weakly muscled neck

— weak rib cage

— large abdomen

— small pelvic structure

The Type Of Seat

Which is the best seat?

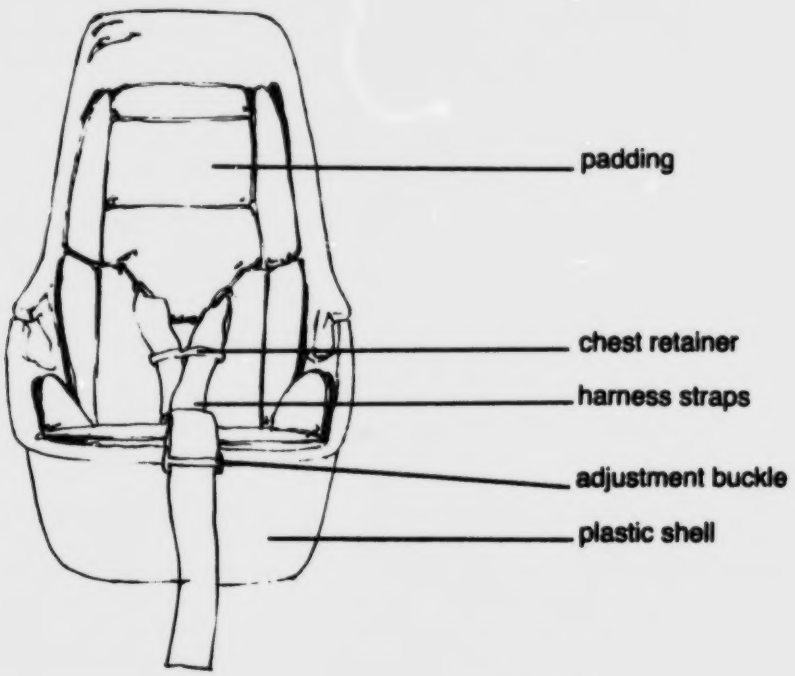
Every seat must have a statement of compliance on its label; for infant carriers there should be an indication that the seat meets the standards established by CMVSS 213.1 (Canadian Motor Vehicle Safety Standard). For child restraint systems designed for children over 9 kg (20 lb.) the label should read: "This product complies with applicable requirements of the Children's Car Seats and Harnesses Regulations". Compliance labels indicate that the manufacturer has had his product designed and/or tested to the appropriate standard. A pre-1982 seat for the under 9 kg infant might indicate that the seat had undergone "dynamic testing" rather than compliance with "CMVSS 213.1".

The seat should be compatible with the life style of the adults and child using it. It may need to be moved from car to car, be easy to use in the back of a small car, be used by a very chubby child, be the right height for window viewing, be required to serve as a temporary bed or high chair when visiting, or be buckled by someone with arthritic hands. The seat that will be used properly every time is the best seat for the child.

Infant Carrier

The young infant cannot sit up by itself or control its head movements. Rear-facing infant carriers are designed so that the child is restrained by shoulder straps that pass through

Infant Carrier



the base of the plastic shell, with a retainer strap or plastic buckle across the chest. The seat is constructed to hold the infant in a semi-reclining position. A lap belt secures the infant carrier in place. When it is used by very small babies, a towel or blanket rolled and placed beside the head and shoulders prevents the head from slipping sideways. These seats are easily carried by moulded hand-holds. The child can be placed into the infant carrier inside a building and carried out to the car. Some of these seats are designed to hold the infant from birth to 9 kg (20 lb.), others to 7.9 kg (17 lb.).

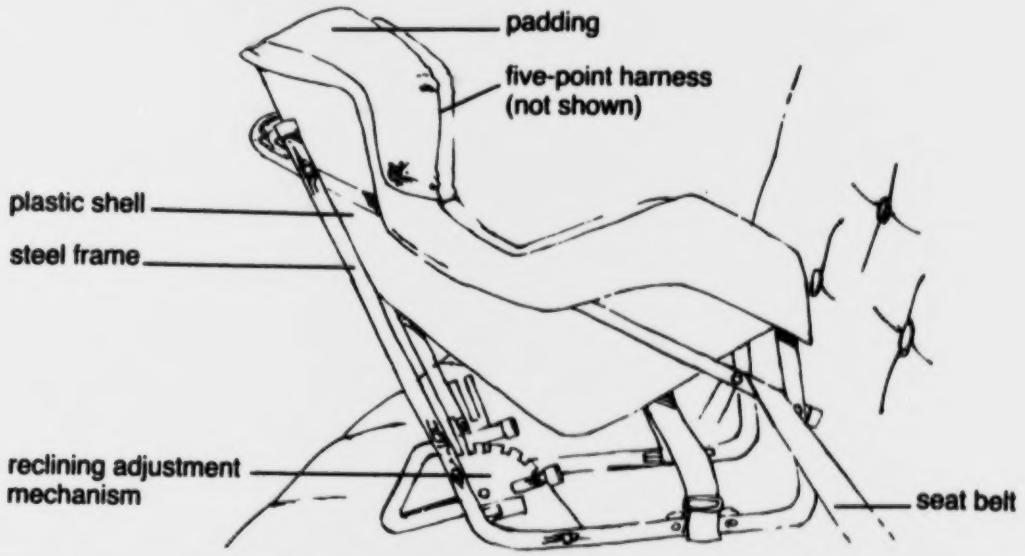
Convertible Seat

These seats are designed to be used by children from birth weight to the 18 kg (40 lb.) upper limit, and therefore have to incorporate the design features of both child seats and infant carriers. This involves a mechanism allowing the seat to be in a reclining position when used for the infant, but adjustable to position the seat upright for the child. It usually has a five-point harness consisting of shoulder straps, lap or hip straps and a crotch strap which are buckled together and used throughout both stages; the harness position may be altered through slots in the back of the seat. The seat can be attached to the car seat in both forward and rear-facing positions by the placement of the seat belt.

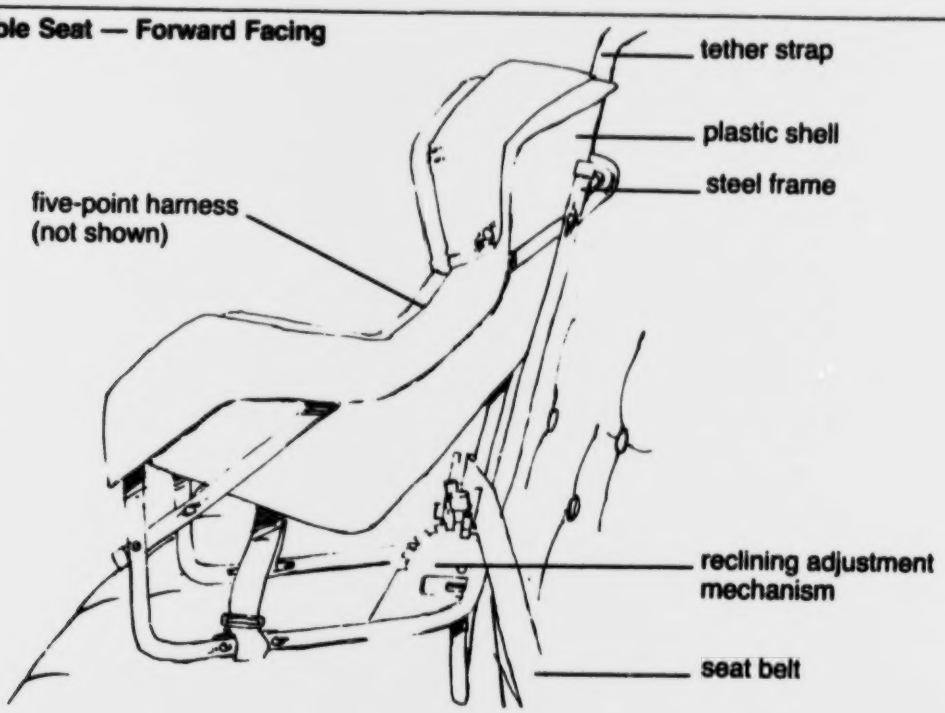
When used forward-facing, a tether strap is also used to hold the seat securely to the metal framework of the car. As these seats have to protect the greater weight of the toddler they are usually a larger, heavier seat than the infant carrier.

Some seats have an arm rest or a shield in front of the child's body which may pop up unless the harness is fastened. These arm rests are not a safety device but are provided only for additional comfort.

Convertible Seat — Rear Facing



Convertible Seat — Forward Facing



Child Seat

Designed to hold a child that can sit alone, the child restraint seat faces forward with the child buckled in by a five-point harness. These seats cannot be used for an infant who is unable to sit up alone or is under 9 kg (20 lb.). The seat is held in an upright position against the car seat back, by a tether strap attached to the metal car body and anchored by the seat belt.

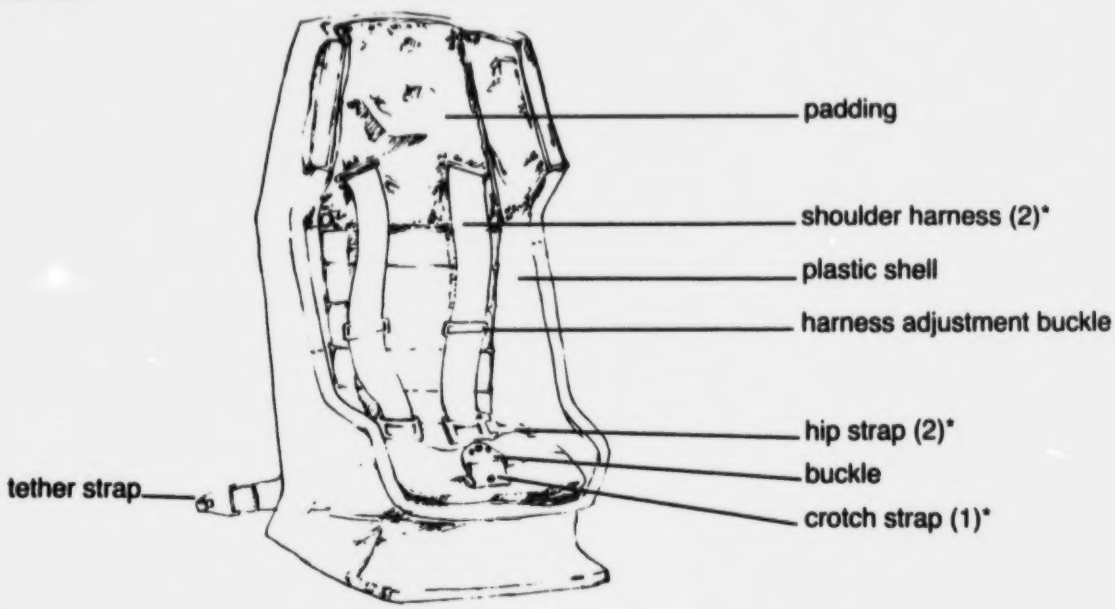
Tether Straps

In Canada, all child seats and convertible seats, used forward-facing for the 9-18 kg (20-40 lb.) child, are fitted with an anchor strap or tether strap intended to be fastened to a bracket bolted into the metal framework of the car.

The correct attachment of the tether or anchor strap is essential to the optimum performance of the child restraint seat when used in the forward-facing mode. It prevents the seat from bending, or pitching forward or sideways in a crash. This is especially important with a restraint that has a high or small base, or a plastic back. **Tether straps must be installed exactly according to the individual manufacturer's instructions, and used whenever possible.**

Diagrams on the following pages indicate the general method of installation. If a pre-drilled hole is not provided in your vehicle, have one drilled from inside the vehicle, into a flat, solid metal welded-in part of the vehicle, and at least 30 mm (1 1/4 inch) away from any other hole.

Child Seat



*five-point harness

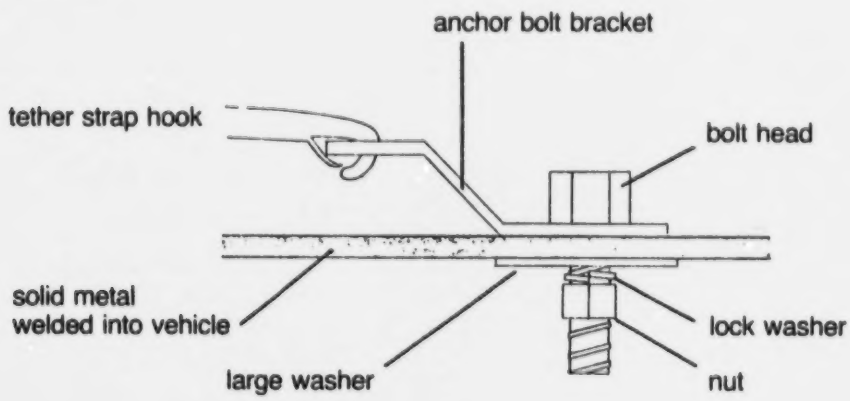
Care should be taken not to hit the rear window with the drill tip. In a station wagon or hatchback a spot must be found that is solid metal and an integral part of the vehicle, not the moveable floor. It must be far enough back that the angle between the strap and the floor is less than 45°. If holes are drilled through the floor, be sure they do not allow any exhaust fumes into the car.

The anchor bolt should be located in a direct line behind the child restraint when the seat is fastened to the vehicle by the seat belt, and should be far enough back that the strap can be securely tightened. The bolts stay in the car, but the seat can be unhooked and used elsewhere.

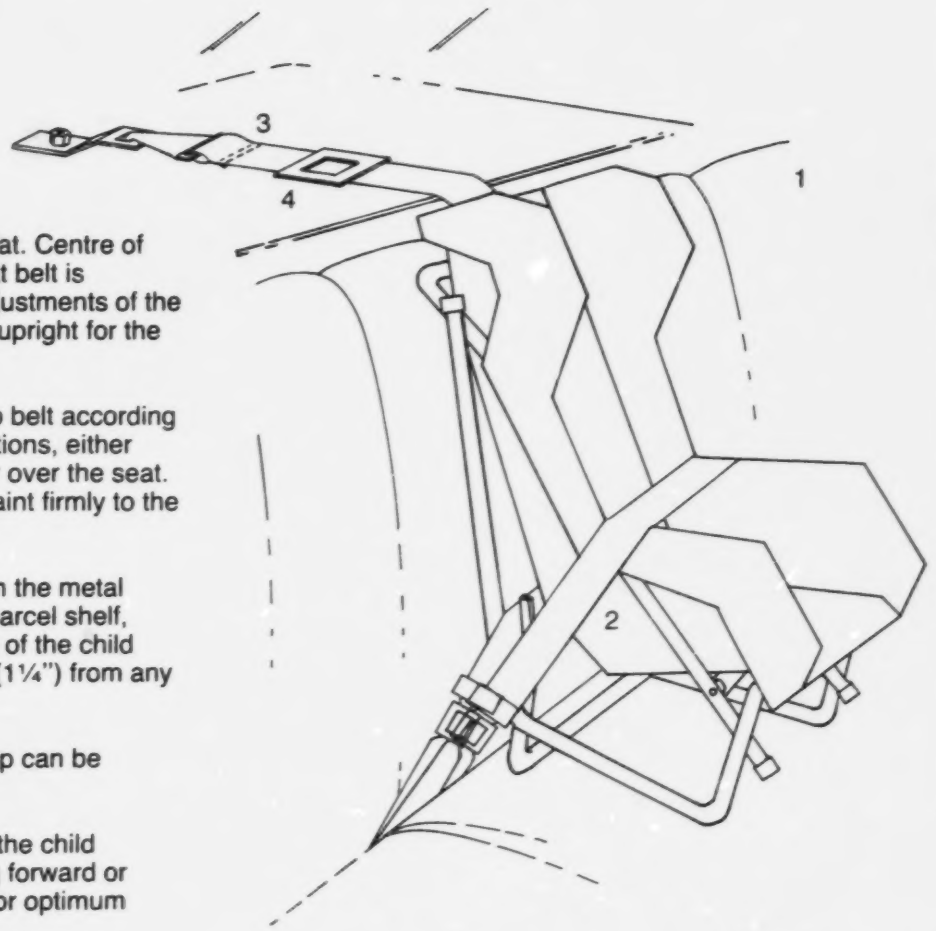
In an emergency when an anchor bolt is not available, a seat requiring a tether strap attachment can be used by placing the child seat on the front passenger seat and hooking the tether strap to the rear seat belt or buckled lap belt. The strap should be tight. Run the top strap inboard of an adjustable headrest, i.e. on the inside of the headrest, closest to the centre of the vehicle. This method cannot be safely used with bucket seats, and should only be used as a last resort. The back of the front seat has limited strength and often breaks away in a collision situation.

If the child restraint seat has to be placed in a front seating position, the rear seat lap belt can be used to attach the tether strap. If there is no lap belt latch plate within 250 mm (10 inches) of being directly behind the child restraint, do not use this method. Be sure the tether strap is securely tightened.

Anchor Bolt Assembly



Typical Tether Strap Installation Sedan Rear Seat



1. Position child restraint seat. Centre of back seat is best, if a seat belt is available. Be sure the adjustments of the reclining mechanism are upright for the toddler.

2. Attach the seat by the lap belt according to manufacturer's instructions, either through the framework or over the seat. This holds the child restraint firmly to the vehicle seat.

3. Position anchor bracket in the metal welded-in portion of the parcel shelf, directly behind the centre of the child restraint, at least 30 mm (1¼") from any other holes.

4. Check that the tether strap can be securely tightened.

   The tether strap secures the child restraint seat from tipping forward or sideways. It is essential for optimum safety.

Always Check The Manufacturer's Instructions

Typical Tether Strap Installation Hatchbacks, Station Wagons and Vans

1. Position child restraint seat. Centre of back seat is best, if a seat belt is available. Be sure the adjustments of the reclining mechanism are upright for the toddler.

2. Attach the seat by the lap belt according to the manufacturer's instructions, either through the framework or over the seat. This holds the child restraint firmly to the vehicle seat.

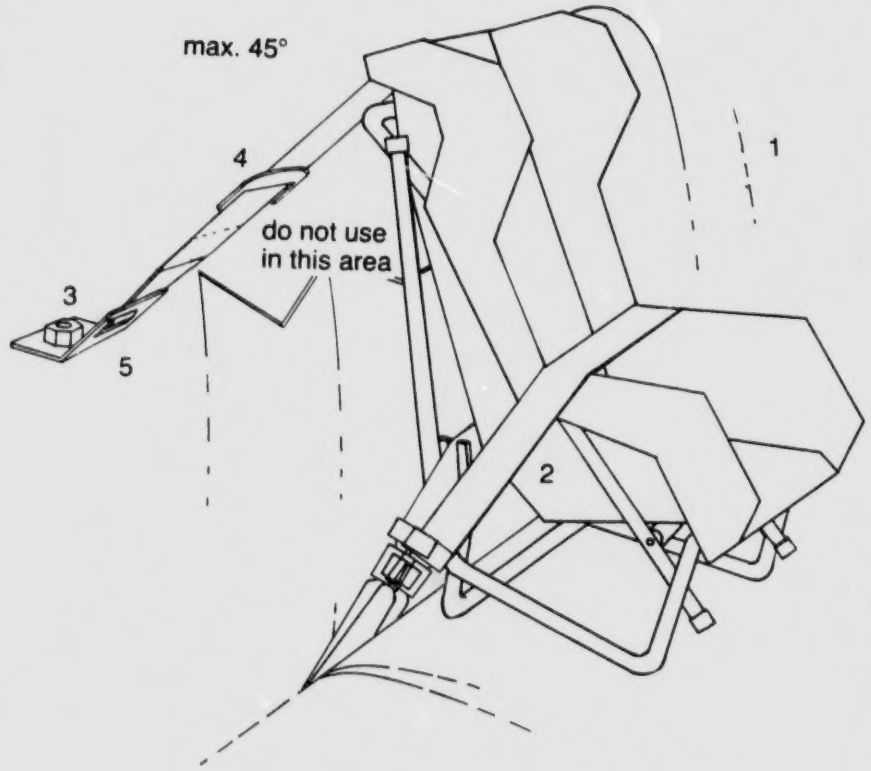
3. The anchor bolt must be located directly behind the centre of the child restraint.

   A suitable position has to be found on a flat metal surface that is an integral welded-in part of the vehicle body. This will involve cutting holes in cargo area covers or floor coverings to reach the metal. Avoid drilling through fuel tank, exhaust pipe, etc.

4. The tether strap should be extended clear of impediment that would cause slack.

5. Drill bolt hole through the metal. If hole is through floor from outside the vehicle, seal hole from exhaust fumes. Fully tighten nut.

   The tether strap secures the child restraint seat from tipping forward or sideways. It is essential for optimum safety.



Always Check The Manufacturer's Instructions

Typical Front Seat Tether Strap Installation Pick-Up Trucks

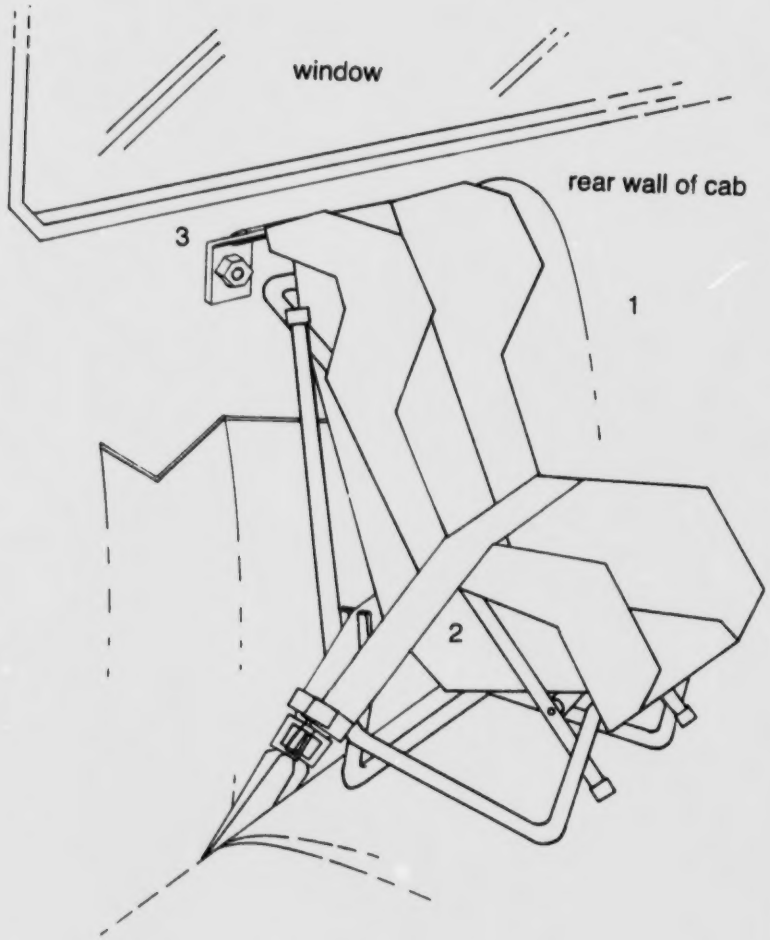
1. Position child restraint seat. Be sure the adjustments of the reclining mechanism are upright for the toddler.

2. Attach the seat by the lap belt according to the manufacturer's instructions, either through the framework or over the seat. This holds the child restraint firmly to the vehicle seat.

3. Attach anchor bolt near rear window reinforcement on cab back panel, directly behind the centre of the child restraint. Tighten tether strap so no slack is allowed. Seal hole from exhaust fumes.

   The tether strap secures the child restraint seat from tipping forward or sideways. It is essential for optimum safety.

4. Drill bolt hole through the metal from inside the truck. Fully tighten the nut.



Always Check The Manufacturer's Instructions

Lap Belts and Car Seats

All currently available child restraint seats use the vehicle lap belt as part of their anchoring device. If the lap belt and shoulder harness have latch plates that allow the webbing to slide freely in both directions, a special locking clip must be attached (see page 6.12). Some lap belts feed through the metal or plastic framework of the child restraint seat, some through special slots, and others over the seat. When they pass over the top, the belt must be fastened or unfastened each time a child is placed in or removed from the seat. In the other positions, the belt may be buckled until the seat itself is to be removed. Some seat belt buckles do not fit through CRS frames, or will not tighten sufficiently when the seat is in place. It is dangerous to improvise with a method other than the manufacturer's. It is advisable to check these features before purchase. If possible, test the seat in the car and make arrangements to return it to the store if it is not suitable. It should be tested in both rear and forward-facing positions.

Padding Material

Child restraint seats are padded with a variety of materials. The more costly seat will sometimes have a cloth cover which is comfortable, but difficult to clean. Vinyl is less expensive and easy to clean, but has a tendency to be sticky in hot weather and cold in winter. A terry towelling cover, purchased or made at home, gives an easily laundered cover that can protect the child from the extremes of weather. With an additional cover it is essential that the slots for the harness match those of the seat, otherwise the harness straps may become twisted or pinched. To perform correctly, their full width is needed to distribute the impact forces.

Lap Belts and Booster Seats

When children reach a weight of more than 18 kg (40 lb.) they will have outgrown their child seat. The appropriate means of restraint at this stage is to place them in the rear seat secured by the vehicle lap belt. It is important to ensure that the lap belt does not rest on the child's soft stomach but rather low and snug over the hips. Booster seats have been designed to assist in overcoming this problem. The seat is basically a firm cushion with a retaining system for holding the belt low over the hips. It offers the additional advantage of safely improving the child's view from the back seat. Booster seats meeting federal government safety regulations will be available for sale in Canada in 1983. They should not be viewed as an alternative to the child seats designed for children up to approximately 18 kg (40 lb.) in weight.

On occasions when a child seat or a booster seat is not available, it is safer for children to use the regular vehicle lap belt than no restraint at all. There should be only one person per belt. Two children in one belt can be thrown together, banging their heads. An adult and a child in one belt places a tremendous load on the child's pelvis.

If the child is under 23 kg (50 lb.) and has to travel in a position with a shoulder harness which rides above the root of the neck, then the harness can be placed behind the child, never under the arm as this can cause injury.

James A. Newman, Advisor to Transport Canada, Road and Motor Vehicle Traffic Safety Directorate, is quoted in "Safety Canada", Oct. 1981:

"When a child's movement is arrested by a seat belt system, the system has to deal with far

less energy than for an adult. The forces generated on the child by the restraint, will, under identical crash conditions be proportionately less than that for the adult because of the difference in inertial effects alone. The greater elasticity of the child's structure will result in even further lowering of restraining forces. It is hence not surprising that although perhaps inherently weaker, children do not sustain significant seat belt induced injury simply because the restraint forces are relatively small."

Behavioural Patterns

Disruptive Behaviour

The use of child restraint seats has been found to be beneficial in controlling children's disruptive behaviour in the car. A 1977 study by Edward Christopherson of Kansas University Medical Center observed children riding in automobiles with their mothers. Those riding in child restraint seats displayed high levels of appropriate, safe behaviour in comparison with those riding unrestrained. When car seats were introduced to children who had not previously used them, their behaviour improved dramatically, which in itself is a significant safety factor.

The Parents' Attitude

It is to be expected that a child who is restrained in a child restraint seat (CRS) from its first ride will accept this as the only method of travelling, and where this is repeatedly reinforced will mature to continuous seat belt usage. This behaviour is instilled through the parents' actions towards the child's use of the seat and the example the parents set through their own seat belt use.

Parents should not frighten children by telling them of the awful things that happen in a crash. Be positive: the car seat helps them see out of the window, and keeps them from bumping their heads. Some children enjoy the idea that race drivers, pilots and astronauts all wear special harnesses and sit in a special seat. Others will enjoy using their seat in the house as a private chair for television viewing or other activities. Introduced in a matter-of-fact manner, and used with frequent praise for appropriate behaviour, the car seat will soon be accepted by most children. Brightly coloured stickers could be awarded for appropriate safe behaviour in the car and attached to the sides of the CRS. This would also personalize the seat for the child.

Developmental Changes

As children reach the early stages of walking and talking, at one to two years of age, it is normal to find them rebelling against many things including the confinement of the CRS. This problem needs to be handled patiently by the parent, understanding it as a normal stage of development, but realizing that the child cannot be allowed to travel unprotected. This should be viewed as a life-death matter in a similar manner to such hazards as open fires or poison.

If the child undoes the buckle, many parents will pull over to a safe place out of the traffic and wait until the child is settled in the seat again before proceeding. During a period of "exploration and testing" by the toddler, persistence on the part of the parent to reinforce the correct use of the child restraint seat will be important.

The family should make it a policy not to drive anywhere unless everyone is buckled in. With an older child who is reluctant to be restrained, a demonstration conducted in a safe location can show them the impact on their bodies if the brakes are hit at 5 km/h.

Distractions

Breaks can be taken in long journeys, soft books and toys kept for the car only, songs sung, and stories told to distract the child from disruptive behaviour. If there is concern that the infant will find it dull facing the seat back, a bright picture may be taped to the seat. If possible, dress children for inside-the-car temperatures so that they are comfortable.

One of the advantages of using restraint systems is that when there is more than one child, they are physically separated, and less likely to bother each other. Adults can drive without the dangerous distraction of unruly children moving around in the car.

Facts and Figures

Twenty-three American states introduced proposals for child restraint legislation in 1981.[1] Thirteen states have actual restraint laws while two others have laws establishing informational programs.[2] In some states, including California, Maine and Virginia, the resolutions support educational efforts which provide public information. In New York the mandatory restraint law covers children under five years of age travelling in vehicles registered in the state. Michigan, similarly, makes all drivers responsible for children under four, and is the first state to regulate transportation practices of licensed day care facilities. Kansas, Tennessee and North Carolina limit the responsibility for restraint use to the parents and guardians.

The Tennessee Child Passenger Protection Act passed in 1977, has an interesting program of administration. Covering children under four with the parents or guardians responsible, it was not enforced by the police officers who did not see it as important. An enforcement strategy was planned with pediatricians involved in training the troopers. Every highway patrol car carried a child restraint seat. Violators of the law were stopped, and given the trooper's seat to use. They were told that the charge would be dismissed if at the time of the court appearance they would return the trooper's seat and prove they had purchased their own. This program is proving very successful in gaining the co-operation of the enforcement officers in educating parents. (See Bibliography #20).

With the exception of the Northern Territory, all **Australian** States and Territories have legislation for the compulsory restraint of children less than eight years old. **Austria, Czechoslovakia, Denmark, Luxembourg, the Netherlands, Switzerland, and West Germany** legislate that children ride in the back seat of a car.

As of October 1982, child restraint laws have been passed in **Saskatchewan, Newfoundland, Québec and Ontario.**

The Province of Saskatchewan has enacted a law requiring mandatory restraint use for children born after June 30, 1980. In May 1981 this involved only 18 per cent of the under five-year-olds, yet 33 per cent of them were using restraint systems. The public education program uses the public health nurses throughout the province. There is an ongoing program of workshops to keep the educators informed. Brochures, film, a slide tape program, overhead transparencies, posters, charts and a comprehensive resource manual were developed into a "kit" provided to each regional health office.

Regional seminars were also held for the police, acknowledging the importance of their support for and understanding of the legislation. (See Bibliography #21).

The Province of Newfoundland has passed a law requiring mandatory restraint use for children born on or after July 1, 1982. The law also requires children who have attained the age of five years or whose weight exceeds 18 kg (40 lb.) to be properly restrained where a seat belt is provided for that seating position.

In Québec, the Highway Safety Code (June 1981) states: "No person may, on a public highway, drive a passenger vehicle in which a child less than five years of age is seated in front unless the child is secured by a seat belt or a safety device . . ."

1. U.S. Department of Transportation. Traffic Safety Newsletter, February 1982.
2. Insurance Institute for Highway Safety. Status Report, April, 1982.

Since May 1981, the Community Health Department of the Montréal General Hospital has been conducting a child seat pilot project in an area of Metropolitan Montréal where the highest hospitalization rate due to traffic accidents in the city is recorded. The pilot project is two-pronged: 1) education/information and 2) the loan of an infant carrier to all new parents. Community groups in the area are involved. The project leaders are Dr. John Hoey, Mme Yvonne Robitaille and Mme Joceline Legault, Department of Community Health, 1597 avenue des Pins ouest, Montréal, Québec, H3G 1B3. Tel: (514) 937-9231. As initiators of this project, they are eager to exchange information with persons responsible for similar programs elsewhere in Canada.

The Ontario, May 1981, Ministry of Transportation and Communications roadside survey results indicate that the usage rates for child restraints and seat belts for those under five years of age were 47 per cent. Child restraint use increased from 21 per cent in 1978 to 33 per cent in 1981.

Drivers with children under five and owning safety seats reported that 58 per cent of the children 'always' used the seat while 22 per cent 'never' used the seat.

Children were restrained by child safety seats and regular seat belts to a significantly higher degree when the driver was belted (38 per cent and 19 per cent, respectively) than when the driver was not belted (19 per cent and 10 per cent, respectively).

In 1976, the first year of the Ontario seat belt law and reduced speed limits, the government compared **health care costs** from highway accidents with the previous year and discovered the following[1]:

- the cost of active treatment care for hospitalized victims declined by 10.7 per cent, a saving of nearly $2 million;
- the number of hospitalized victims decreased by 13.7 per cent;
- the number of in-patient victims declined by 21.6 per cent;
- the number of victims requiring out-patient care dropped by 14.7 per cent;
- minor injuries were reduced by 13 per cent, moderate to severe injuries by 14.5 per cent;
- the average treatment cost for accident victims wearing seat belts was $228, for unbelted victims $419.

In a study of **use and non-use** of child restraints conducted in Metropolitan Oklahoma for the Oklahoma Highway Safety Office, it was found that:

- approximately 20 to 30 per cent of the devices found in cars did not appear to be properly installed;
- low income, education and occupational status correlate with both non-ownership and non-usage of CRS;
- mothers were twice as likely to restrain their children as fathers. This is only partly explained by the number of adults in the car. It was found that the restraint use declines with the increase in the number of adults in the car;
- restraint use was more likely for short trips to day-care centres or stores than for long highway trips;
- safety seemed to be a major concern for restraining infants, while control and safety were important in restraining toddlers.

1. "Changes in the Number and Cost of Motor Vehicle Injury Victims in Ontario". Monitoring System Committee, Ministry of Transportation and Communications, Ministry of Health.

Forty-eight per cent reported that "most parents buckle their children into car seats more to control their children's behaviour than for safety's sake";

— most parents report purchasing their own child restraint seat; 48 per cent new from a retail store, 2 per cent new from a car dealer and 8 per cent second-hand. Twenty-three per cent received their seat as a gift;
— the two major reasons for failure to purchase appear to be expense (71 per cent) or thinking their child was too active (67 per cent). Women were more likely to be credited with the suggestion to acquire a child restraint;
— of the types of restraint used, the convertible was the most popular (54 per cent), followed by the car seat and infant carrier.

The following information is taken from an article in "Parents Magazine", February 1979. The Fatal Accident Reporting System, part of the National Highway Traffic Safety Administrationin the U.S.A., collected data for 1975-1977 for **passenger-car collisions where children under ten years of age were killed.** The report indicates that:

— most auto collisions involving child passengers occurred between 12:00 noon and 18:00 (38 per cent) and between 18:00-24:00 (32 per cent);
— sixty-two per cent of child fatalities occurred on weekdays;
— thirty-three per cent occurred in city accidents, 66 per cent in rural and suburban settings and on highways;
— in 27 per cent of the collisions there were three occupants in the car, 22 per cent had four occupants and 18 per cent had two occupants;
— more than half (53 per cent) died in collisions at speeds estimated at 88 km/h; 16 per cent at 65-80 km/h;
— the majority of these children died in collisions in which one car collided with another (69 per cent);
— in 22 per cent of the fatalities the child was totally ejected from the car.

Another study by Ray Shortridge and James O'Day of the University of Michigan's Highway Safety Research Institute, based on collision data from Texas, Seattle and a national sample, reached the following conclusions:

"When a small child (five years and younger) was involved as a passenger of a crashed car, the collision was most likely to occur in the daylight hours. Few drivers with small children have been drinking and few drivers with small children were wearing available restraint systems".

INJURIES AND FATALITIES TO CHILD PASSENGERS BY PROVINCE, 1979

Province	Victim Age Groups							
	01-04		05-09		10-14		Total Casualties	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Alberta	8	385	4	348	14	498	26	1231
B.C.	5	566	4	581	10	732	19	1879
Man.	5	181	1	190	2	243	8	614
N.B.	3	57	0	59	2	81	5	197
Nfld.	2	34	0	28	0	47	2	109
N.S.	1	34	0	0	*3	*103	4	137
N.W.T.	0	1	0	0	1	1	1	2
Ont.	17	1671	7	1787	21	2084	45	5542
P.E.I.	0	7	0	11	0	15	0	33
Que.	14	856	17	853	18	941	49	2650
Sask.	13	177	3	154	6	252	22	583
Yukon	0	0	0	1	0	5	0	6
Canada	68	3969	36	4012	77	5002	181	12983

*In Nova Scotia, victims are aggregated into the age groups 0-4, 05-14. The age group 05-09 does not exist.

COMPARISON OF LEADING CAUSES OF DEATH BY AGE GROUP, 1979

Cause of Death	0-1	1-4	5-9	10-14	15-19	Total
Accidents, Poisonings Violence	149	374	374	425	1,936	3,258
Infectious and Parasitic Diseases	55	34	10	8	19	126
Congenital Anomalies	1,086	133	47	24	43	1,333
Neoplasms	22	84	109	79	147	441
Respiratory Diseases	217	59	23	32	54	385
Diseases of the Nervous System	78	54	33	35	51	251
Diseases of the Circulatory System	35	20	15	18	58	146

Source: Causes of Death, Statistics Canada, Catalogue 84-203, 1979.

Restraint Usage Rate of Children Involved in Traffic Collisions in Alberta, 1981

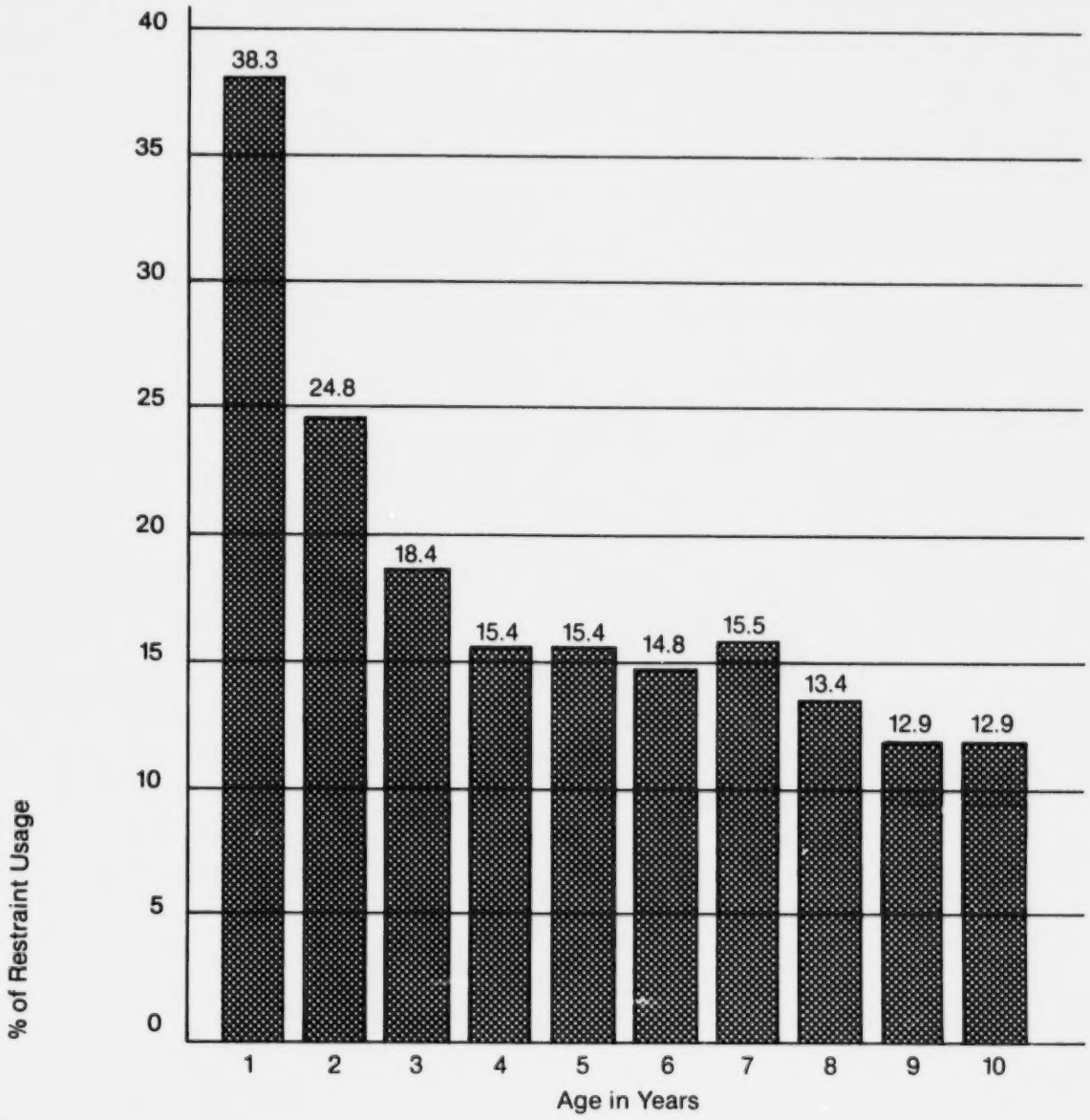
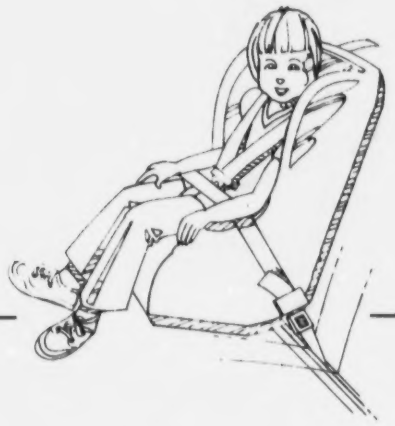


Table 1

Among Children involved in traffic collisions the highest restraint use was recorded among 1 and 2 year olds. As the child grows older restraint use steadily declines. Specifically, 38.3% of 1 year olds were restrained compared to 15.4% of 5 year olds and 12.9% of 10 year olds.

SOURCE: Alberta Transportation
Safety Branch.

Life is Precious.
Buckle Them In.



3. instructional guidelines

Instructional Guidelines

These guidelines are designed for use by medical practioners, public health nurses, postpartum nurses, childbirth educators, pre-natal instructors, parenting consultants, day-care workers, and others with interests in child safety.

In order for parents of young children to be motivated to use child restraints correctly, they need to understand the benefits and to be encouraged in their use by those in authority.

Parents of young children are reached through many channels. Some are formal situations where direct information is presented and discussed, such as pre-natal classes. Other channels are informal, where literature can be displayed, such as the waiting room in a health clinic.

Similarly, groups of professionals involved in various areas of child development can influence other sections to include child restraint use education in their program. Hospital administrators can play an important role in developing work shops for the hospital staff, displaying materials, organizing staff in encouraging parents of newborns to use restraints and counselling motor vehicle accident victims.

Each contact made, each misconception corrected, each encouragement given, can lead to the goal of decreased injuries and deaths to child passengers travelling the roadways.

Since the information can be found elsewhere in this manual, the instructional guidelines given are not detailed.

Group Interaction

There are many channels through which information can pass to reach the parents of young children. (See next page).

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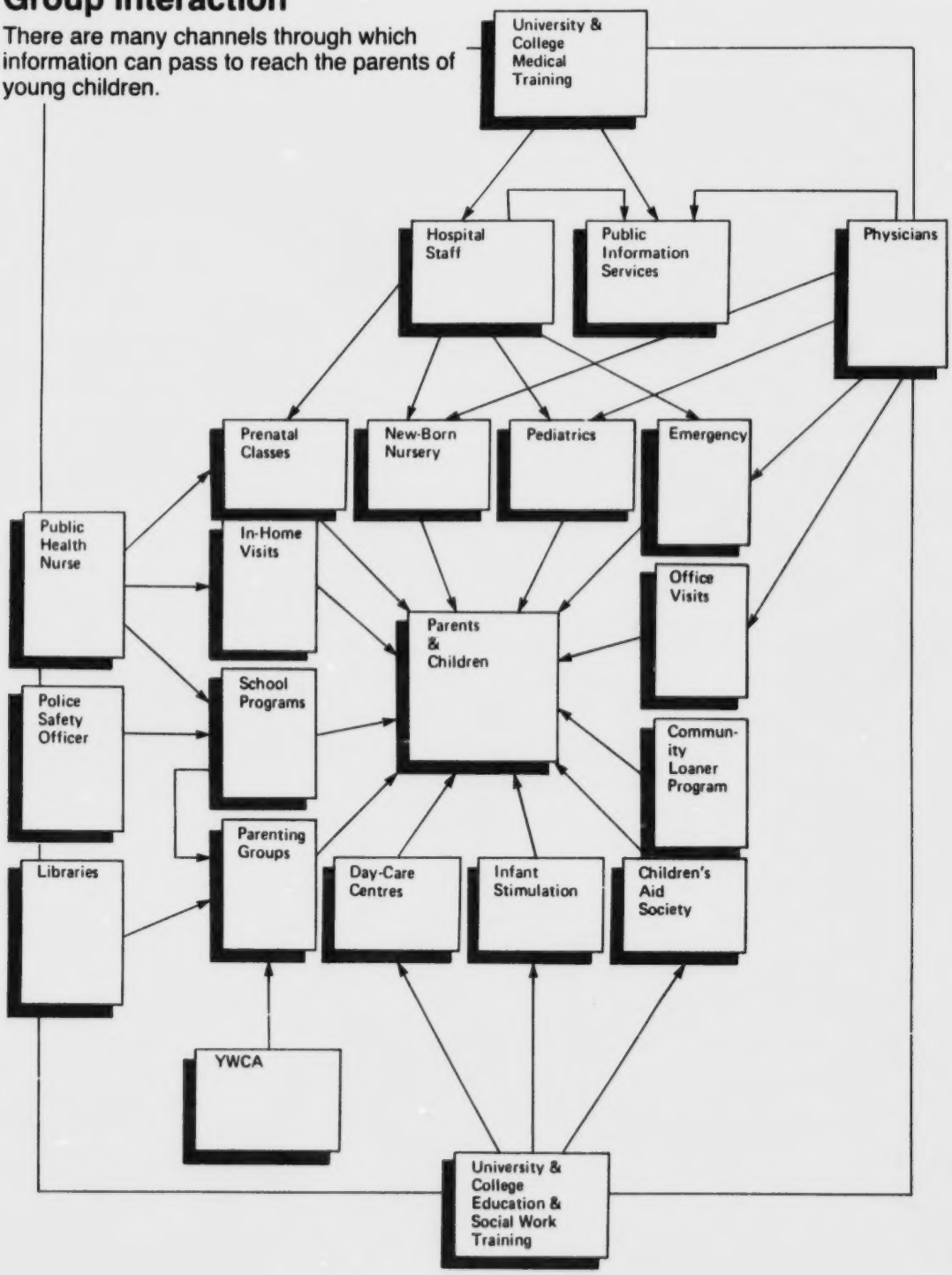
There are many channels through which information can pass to reach the parents of young children.



Workshop For Professionals

To be presented to groups such as general practitioners, pediatricians, obstetrical ward nurses, and pre-natal educators.

Aim:

a) To motivate health care professionals to incorporate into their regular programs for educating parents the teaching of child passenger safety in vehicles.

b) To arouse a feeling of responsibility in the health care professionals towards educating others in related fields (e.g. day-care centres, pre-school play groups, social service agencies) concerning the importance of children being transported safely in child restraints.

"From all available data throughout the world, it is well accepted that a restrained infant or child has a much greater chance of crash survival than does an unrestrained little person. The neglected and battered child syndrome should be reduced to its lowest possible denominator by public education and government legislation. The Ontario Medical Association Committee on Accidental Injuries encourages the medical profession to take an active and an informed part in the eradication of this disease syndrome for the sake of the child."[1]

Presentation Outline

1. Professional responsibility:
   - — preventive medicine; child restraint use can save many children from severe injury;
   - — influence on parents; the health care professional viewed as a credible source of information on child rearing;
   - — lack of encouragement and education main reasons for non-use or misuse of child restraints.
2. The problem:
   - — the "human collision"; the behaviour of the body in a collision situation. (See page 2.1);
   - — the child's vulnerability in a vehicle due to anatomy. (See page 2.6);
   - — long term results from collisions, especially severe head injuries;
   - — health costs. (See page 2.21).
3. Aim of educating parents:
   - — find opportunities to discuss child restraint use and display educational material, e.g. physician's office, pre-natal class, home visit;
   - — convince parents that the child is vulnerable to collisions, and that the danger is sufficient to outweigh costs and inconvenience;
   - — explain injury prevention through use of child restraint — injury caused by sudden stops, swerves etc., collisions caused by child distracting parents; the "human collision", and that by using restraints adults and children can 'ride down' the crash;
   - — persuade parents of the benefits in improved behaviour of the child;
   - — have parents turn understanding into action by urging them to purchase a child restraint and to use it in every car journey;

1. The Ontario Medical Association Committee on Accidental Injuries, "Child Restraint Systems: The Neglected Child Syndrome," Ontario Medical Review, November 1980, p.580.

— physicians can write reminders or instructions to purchase CRS on prescripton pads;
— have literature available.

Other suggestions may be found in appropriate sections, e.g. pre-natal class (see page 3.5) and publicity for loaner programs (see page 6.14).

4. View film "Life Is Precious". Shows seat belt and child restraint use through pregnancy to pre-school age. (See Resource Guide page 7.1).

5. Discuss points arising from the film. (See suggestions on page 5.1).

6. Demonstrate the use and installation of car restraint seats. This can also be a "hands on" opportunity for participants to become acquainted with child restraints. (See page 4.1).

7. Programs:

— hospital discharge in child restraint seat;
— community rental programs for infant carriers;
— pediatricians and family doctors rewarding children who have travelled to the office using a restraint system;
— evaluation — records kept of compliance measure effectiveness of programs, giving positive reinforcement for the participants and data for publicity;
— child passenger safety week, to involve community and media.

8. Conclusion:

— commitment to a program by participants;
— hand-out of materials.

A study conducted by Larrie Greenberg M.D. and Allan Coleman M.D. in Washington D.C. found a strong correlation between personal seat belt use and frequency of safety counselling by physicians when visited by patients in the pre-natal and postpartum periods. This suggests that health care professionals need continuous reinforcement about car safety, not only for themselves but for the effect of their counselling on patients.

Pre-natal Class Program

The presentation should be appropriate for the class level of safety awareness, remembering that perhaps this is a relatively new concept for prospective parents, and one that their own parents would probably not have practised. Since the classes present the parent-to-be with a large quantity and variety of information which needs to be retained until the birth or after, the presentation should include hand-outs for perusal later.

Aim:

a) To bring awareness to prospective parents of the "human collision" concept so that they relate it to themselves and to their future child. (See page 2.1).

b) To motivate the prospective parents to prepare for the baby leaving the hospital in a child restraint seat, so that safe behaviour is established from the start.

c) To demonstrate the correct use of seat belts in pregnancy and of the child restraint seat (CRS) when the baby comes. Stress that the whole family should be wearing seat belts.

The subject of child restraint systems can be introduced with various subjects. It is also important to review it briefly whenever suitable. It can be included with:

— the list of items needed to take the baby home from the hospital — include a CRS;

— physical care of the mother — seat belt;

— the infant's needs in the home — buying a CRS;

— infant care and safety — using a CRS regularly and correctly;

— parenting — setting examples, behavioural attitudes.

Presentation Outline

1. Introduction:

   New child/new attitudes. Responsibility of parent to provide a safe environment in the home and in the car. Therefore, plan to take the baby home from the hospital in an infant carrier or convertible car seat in the rear-facing infant position.

   Safety of parents essential to child. Seat belts to be worn during pregnancy. (See page 3.6). Good parenting sets example for child. Continuous use of seat belts for both parents and child means less risk of injury and likelihood of child growing up to always use a belt too.

2. Film "Life is Precious. Buckle Them In" (See page 7.1). The film covers the restraint needs of the pregnant woman and unborn child, through to the preschool age. Narrated by a physician, it talks to the parents about their responsibilities. Discussion subjects are suggested on page 5.1.

An actual demonstration, of both seat belt use in pregnancy and the use of a rear-facing infant carrier and/or convertible seat in the infant position is an excellent reinforcement of the movie, and should be included if time permits. (See demonstration section of this manual for details page 4.1).

A display of brochures and articles would allow choice of detail in the subject matter. (See Resource Guide page 7.1).

To encourage the purchase of a child restraint seat, it is useful to provide a list of local outlets, prices and types of child restraint seats available. This can be a take-home project for the class participant; each to call one store to learn about the types etc. and report back. Also, provide details of any "loaner" or rental program of infant carriers operating in the area. (See page 6.1 for information on rental programs.)

A planned follow-up or evaluation of the program can be done through the local hospitals. If the hospital is willing to organize its own program for the mothers on the maternity ward, it will reinforce the pre-natal teaching and reach the mothers who have not attended pre-natal classes. Records of the infants leaving the hospital and their mode of transportation can provide a measurement of program effectiveness. (See page 3.7).

Seat Belts during Pregnancy

Studies have shown that although it is neither easy nor comfortable to wear a seat belt when pregnant, the only way to protect the life of the unborn child in a motor vehicle collision is by ensuring the survival of the mother. The mother's body offers the natural protection of her bones, muscle and fluid, a built-in "child restraint". It is therefore doubly important that the mother is protected from the risk of injury in a motor vehicle collision. The seat belt should be worn low on the hips, pulled downward on the pelvic bones. The shoulder harness should also be used whenever possible, as it prevents the torso from being thrown forward. It can go around the top of the bulge, holding the shoulders back. It is more comfortable to sit upright with the seat belt assembly as snug as possible. A doctor should be advised of even the smallest collision.

"Pregnant women are better off belted than unbelted. The greatest single cause of fetal death in accidents is the death of the mother. Of unbelted pregnant women who were ejected from cars by collision forces, 33 per cent were killed and 40 per cent seriously injured. Of the pregnant women who remained in the car, only five per cent were killed and 11 per cent seriously injured.

Pregnant women are more susceptible to injury by seat belts than are other people. Even so, pregnant women are better off belted than unbelted. Shoulder harnesses should be worn with the belts to prevent jack-knifing."[1]

"A recent study, using the baboon, was performed at Wayne State University. In this study, a three-point restraint system (lap belt and shoulder harness) was compared with the lap belt alone. The lengths of gestation for the pregnant baboons in each part of the study were similar, and the baboons were randomly assigned to either lap-belt restraint or a three-point harness. At an average of 23 g deceleration, 50 per cent of the lap-belted mothers lost their fetuses, compared with an eight per cent rate of fetal mortality when the mother wore the shoulder harness in addition to the lap-belt. None of the mothers had any significant injuries as a result of the impact."[2]

1. Dr. Warren Crosby and Dr. Paul Costiloe, University of Oklahoma School of Medicine. Study of 441 rural California accidents involving pregnant women. "Safety Ride for Mother and Child," Woman's Day, September 1971, p.83.

2. "Automobile Safety Belts During Pregnancy", Journal of Traffic Medicine, vol. 3, no. 1, 1975.

In-Hospital/Postpartum Program

This type of program can be organized on a formal basis with responsibility for the parental teaching in the hands of the head nurse as part of the newborn care program, or informally, with all the nurses trained to discuss child restraint seats (CRS) with the individual parents. It can also be organized by volunteers in either form.

The program should be available to the new parents while in the maternity ward for the birth period. The group would consist of parents of first-borns, as well as those who have older children. It should be remembered that parents are especially aware of the fragile state of their infant at this stage, and receptive to health education teaching.

Aim:

a) To teach the "human collision" concept to new mothers, making them aware of the possibility of injury to their children. (See page 2.1).

b) To encourage the parents and nurses to give up the tradition of the mother leaving the hospital with the new baby in her arms, and to strive for each baby being in a rear-facing infant carrier or convertible child seat in the infant position for its first ride.

c) To encourage the purchase or rental of a child restraint seat before the infant leaves the hospital. (See page 6.1 for information on rental programs.)

d) To ensure that the parents understand the correct use of a child restraint seat.

Method:

1. Teaching of child passenger safety can be co-ordinated with other in-hospital training in infant care, e.g. the bathing demonstration could include a demonstration of placing the baby in an appropriate child restraint seat. (See page 4.1 for demonstration techniques).

2. Obstetrical nurses and volunteers can be trained to discuss the subject of CRS with each new mother. A brochure handed to the mother or left beside each newly-made bed, and a poster on display in the waiting room could be the basis of the discussion. (See Resource Guide for available materials, page 7.1).

3. The nurses responsible for the discharge procedure should understand the reasons for and methods of using a child restraint (CRS), and provide encouragement for parents leaving the hospital with their infants in a child restraint. Information and encouragement to obtain a CRS should be given to those leaving with the infant in arms. If the mother is holding the baby she should be encouraged to travel belted in the rear seat, and all other vehicle occupants should be belted to protect themselves and the infant. If much concern is expressed about the infant's safety in the absence of a CRS, another method would be to bundle the baby in blankets and place it, head to the centre of the vehicle, on the floor between the front and back seats.

4. If a layette list is issued to parents in preparation for the infant leaving the hospital, a CRS should be included in the list with a towel or extra receiving blankets to be placed on either side of the baby to hold it securely. It is a good idea to suggest that the CRS be brought to the hospital before the discharge date. The harness can then be adjusted prior to the excitement of leaving.

5. A nurse or trained volunteer could organize a routine twice-weekly showing of the film "Life is Precious". This could be scheduled so that both parents have an opportunity to view the film. The person showing the film should be knowledgeable on CRS so that questions can be answered, and discussion encouraged.

6. A display area can be arranged in the waiting room. A variety of types of CRS, literature, posters and diagrams could be set up and would be self-explanatory. Such a display could also be designed to inform those members of the community who do not read the language.

The hospital has the opportunity to keep records of the numbers of infants leaving in CRS. If this is started before a program is instituted and continues on a daily basis it will provide a measure of program effectiveness. The positive feedback of increasing numbers of infants leaving for their 'first ride — safe ride' will stimulate further interest and encourage the nurses' participation.

". . . recent nursing study demonstrated that when nurses offer pertinent information and strongly encourage postpartum mothers to obtain an approved car restraint they are often successful in persuading parents to buy and use them correctly"[1].

1. Quoted from American Journal of Maternal Child Nursing Jan/Feb 1980. Ref. Susan C. Reinhard "Nursing intervention in the postpartum period and mothers' use of approved infant auto restraint systems". Masters thesis research, University of Cincinnati, May 1979.

Observed Method of Infant Transport from Hospital to Home

Kingston General Hospital

	Month	Mother's Arms	Approved Car Seat	% Using Car Seats
1979	April	79	6	7
	May	82	10	11
	June	63	3	5
	July	101	5	5
	August	56	8	13
	September	77	8	10
	October	80	18	18
	November	82	18	18
	December	72	13	15
1980	January	76	13	15
	February*	59	27	31
	March	56	25	31
	April	39	25	39
	May	46	29	39
	June	29	8	22
	July	47	21	31
	August	44	21	32
	September	20	11	35
	October	58	17	23
	November	41	15	27
	December	44	20	31

* Introduction of Jaycettes "Buckle Up Baby" Rental Program

Home Visit

Public health nurses conduct home visits to mothers of newborns in the role of health and safety teacher.

Aim:

a) To discuss with the parents the use of child restraints (CRS).

b) To stress the child's need of its parent, for on-going care. Seat belt use should start with the parent's example.

c) To conduct a follow-up study of the effectiveness of the programs encountered by the parent, i.e. pre-natal classes, in-hospital demonstrations. This would be of assistance to the health care professional when planning programs.

Method:

1. One-to-one discussion on CRS use, co-ordinated with other safety topics.

   Explain the reasons for using a child restraint seat to protect the child in a vehicle. Suggest benefits of early use. If they have never experienced any other way of travelling, the child's attitude towards car safety may be established for life.

   If a CRS is not being used, the concept can be presented and misunderstanding clarified. If cost is a factor in a child restraint not being purchased suggest local rental program.

2. Check for correct use of the CRS, e.g. ask for demonstration of use; ask "do you use a CRS when you just go around the corner"; "do you always buckle the seat belt". (See page 4.1 for demonstration techniques). If there are older children in the household discuss their safe travel habits.

Parenting Classes

When the child is newborn, parents are easily convinced of its vulnerability and perceive the infant carrier as a safety device. However, in the toddler stage, as the child becomes more active, many abandon the use of a restraint system, leaving the child to bounce about the car unrestrained, a hazard to itself and the driver through disruptive behaviour.

At the toddler stage, the parent needs encouragement to overcome the resistance crisis, and the added difficulties in installing the child restraint (CRS) correctly with its accompanying tether strap. Discussions of the problems and the sharing of possible solutions can be very helpful at this time.

Aim:

a) To teach car safety for the whole family through the "human collision" concept. (See page 2.1).

b) To encourage constant use of CRS, answering problems encountered by users, checking correct usage. (See page 2.8).

Method:

1. The CRS subject can be used as a discussion topic with an informed leader providing additional information.

2. The film "Life Is Precious" (See page 7.1) can be shown as a basis for discussion or instruction. (See suggested discussion points page 5.1).

3. The concept of CRS can be included in different subject areas:

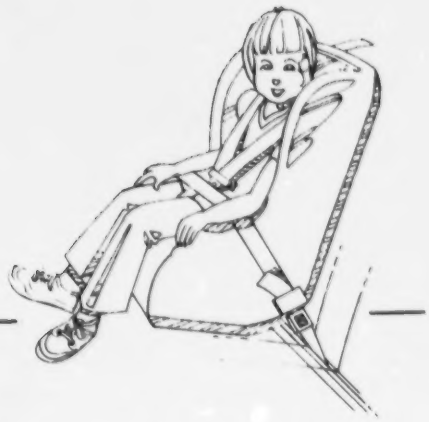
   a) safety in home and car;

   b) the early years — training by parent developing future behaviour patterns for child — imitation of the parent's seat belt use;

   c) stages of development — sitting alone leads to direction change in positioning CRS in the car. Walking and talking stage, nine months to two years, can cause balking at CRS use, needs understanding and firm handling. The problem of needs understanding and firm handling. The problem of the three-year-old who repeatedly undoes the car seat harness can be used as a group discussion.

   d) behaviour modification — children need praise for good behaviour when travelling to reinforce the pattern, and encouragement to do up own harness or belt. Coloured stickers attached to the seat could be used to encourage appropriate behaviour.

Life is Precious.
Buckle Them In.



4. demonstration techniques

Demonstration Techniques

For use by loaner programs, pre-natal and post-natal classes

It cannot be stressed enough that **a seat used incorrectly does not offer adequate protection,** and in some instances could increase the potential hazard to the child. Research by the Insurance Institute for Highway Safety has shown that 75 per cent of child restraints were not used properly or correctly.

The most common misuses of restraints are:

a) not fastening the top anchor tether strap to the bolt, leaving it too loose, or installing the bolt incorrectly;

b) not using the seat belt to secure the child restraint seat (CRS) to the car (especially infant carriers);

c) not fastening the harness straps, or not placing them correctly about the body, or not doubling the straps back when threading them.

It is therefore of great importance to demonstrate the correct installation and use of the seat, and to explain the reasons for these actions.

Preparation

1. Each type of seat has its own manufacturer's instructions for installation and use. These should be studied carefully before the demonstration. It is a good idea to familiarize oneself with the seat and buckles.

2. The model of seat or seats chosen for the demonstration should show as many features as possible:

   (a) five-point and/or Y-shaped harness;
   (b) shoulder strap retainer;
   (c) adjustable reclining mechanism;
   (d) tether strap and bolt assembly.

For more information concerning types of seats, see page 2.8. In a rental program, demonstrate only the seat being rented.

3. If the demonstration cannot be given in a vehicle, it can be simulated by purchasing a car lap belt, or making one from bright coloured paper or lawn chair webbing and devising a method of attaching it to the chair seat on which the CRS is placed. **Since every CRS involves the use of a seat belt as an essential part of the installation, it is important to emphasize the need for its correct fastening and positioning.**

4. Before demonstrating, obtain or arrange for:

   (a) copies of the manufacturer's instructions for the seat that the participants are going to use, e.g. loaner program;

   (b) written instructions or pamphlets which will emphasize what is shown. These should be handed out to the participants;

   (c) a child or large doll to place in the seat;

   (d) receiving blanket or towel for demonstrating the placement of the newborn into a CRS.

Demonstration

1. **Common features**

   (a) **Instruction labels** — point out their display on the CRS. They should be read carefully before and after purchase.

   (b) **Additional instructions** — keep available for use when needed by grandparents, baby sitters, etc., or for resale.

   (c) **Plastic padding** — becomes sticky in hot weather and feels cold in winter. A homemade terrycloth or quilted cover is easily washable and comfortable. If parking in the sun, throw a blanket over the seat to keep it cool to the touch.

   (d) **Upholstery** — a blanket or vinyl tablecloth could be placed under the base of the CRS to protect the vehicle's upholstery from the metal legs of the CRS and from spills by the child.

   (e) **Reclining mechanisms** — important to set according to manufacturer's instructions for optimum crash protection. Other settings can be used when the seat is being used out of the car, e.g. in a restaurant, at a picnic.

   (f) **Harness straps must not be twisted** — the width of the webbing acts to spread the forces of impact. The straps **should be as close to the body as possible** to prevent the jolt of being thrown against them. If the harness is placed over a blanket, the child could slip out in a crash situation, so **blankets used for warmth should always be on top of the harness.**

   (g) Whenever the vehicle is in motion and **the CRS is not being used, it should be buckled in by the seat belt** to prevent it flying into someone in the event of a sudden stop.

   (h) **Child's reaction to the seat** — at first this may not be favorable. The child can sense if the parent is unfamiliar with the harness or may be frightened by the new environment and, feeling insecure, will cry.

   The parent should check that the child is physically comfortable, dry, and not hungry. Then introduce the seat calmly with positive, reassuring statements. With the infant carrier it is easier to buckle the harness in the building and carry baby and seat out to the vehicle.

   The parent should not stop using the seat because the child cries. Children tend to adjust, and there will be far more tears if the child is seriously injured because of being unrestrained. When a child has never known any other way of travelling right from the start, they are usually quite happy in a child restraint seat.

2. **Placing the child or demonstration doll into the child restraint**

   (a) If the seat is being used for the first time, adjust the harness straps to the correct positioning for the child's size. If the harness is too loose the child

may slip out. The straps may need altering as the child grows or is dressed in bulky clothing.

(b) Place the child into the seat, buttocks first. Adjust the child to sitting straight with the buttocks against the back. If the child is very small and slips, pad each side with a rolled receiving blanket or towel, extended from the thighs to the top of the head.

(c) Straps — adjust the harness to fit over the shoulders with no more than one or two fingers' width clearance from the chest. Keep the retainer strap or plastic buckle across the chest; this prevents the shoulder straps from slipping off. These should not be held in position with safety pins. With a five-point harness, gather together the shoulder straps, with the lap straps low across the hip area, and the crotch strap up between the legs. Be sure that the buckle is fastened securely.

(d) If the straps need to be adjusted and re-threaded, emphasize the correct re-looping to hold the child safely. It is a good idea to only undo one at a time, leaving the others as a model for the re-threading.

(e) Parents should prepare for any emergency situation by practising the procedure for removing the child from the vehicle. In a rear-facing position where the seat belt is positioned over the restraint, the seat belt can be unfastened and the seat and child removed together. When the seat is attached by a tether strap or a belt threaded through the metal framework it is quicker to take the child out of the seat. In this case, everyone who travels with the child should be familiar with the buckles and harness strap and be able to release them.

3. Placing the CRS in the vehicle

(a) **Location** — the preferred location is the rear centre passenger seat as it offers maximum safety from intrusion in a collision. However, if this is in use, the other rear seats are safer than the front seat. The rear seat is generally a less hostile area, i.e. no steering wheel, dashboard or control devices.

If, however, an adult is travelling alone with an infant, it may be advisable to locate the seat beside the driver, so that attention is not diverted from the road to attend to an infant in the rear.

(b) **Position of seat** — Child restraints should be used only on forward-facing vehicle seats. The vehicle seat should have a locking seat back and the adjustable headrest should be down. The CRS should never face a fold-up armrest or a seatback with an inset radio. The infant in a CRS should not be placed in the space between two bucket seats or between the front folding seat backs of two-door sedans. The fold-up armrests in the vehicle should be strapped down or removed to prevent them flying upward in a crash.

(c) **Seat belts:**

(i) **Type** — front seat belts in many new cars have a sliding

latchplate and continuous belt, rather than separate lap and shoulder belts sewn together onto a latchplate. Some manufacturer's instructions state that the CRS should not be used with these inertia type belts as the seat might not be held securely with fast cornering or moderate braking. In this case a special locking clip should be installed onto the belt. This can be purchased for a few dollars where the CRS are sold or from the manufacturer (see addresses page 7.10). A locking clip should be used on the seat belt only when attaching the child restraint seat, never for seated passengers. (See diagram page 6.12).

(ii) **Placement** — if a CRS is installed in a position with a shoulder harness as part of the seat belt system, this can be placed according to the manufacturer's instructions. Follow the manufacturer's instructions in threading the lap belt around or through the CRS. As the instructions vary with each type of seat, they must be checked closely. Pull the belt tight, pushing the CRS down against the vehicle seat. Seat belts should be checked periodically to ensure they are securing the CRS adequately. If an older child can reach the lap belt buckle, it may be advisable to turn it over to decrease the chances of its being unbuckled.

d) **Direction of CRS** — all infant carriers and convertible models of CRS used for infants travel facing the rear of the vehicle. They are designed to travel in this direction for maximum safety, dispersing the crash forces over the body. After the child has reached the maximum weight for that seat, usually 9 kg (20 lb.) and can sit upright unsupported, convertible seats are turned facing forward or the child changes from an infant carrier to a child safety seat which is positioned facing forward.

The forward-facing seats are upright in their positioning. When the direction is changed, a convertible seat should be changed from the reclining infant position. All forward-facing seats use tether straps for maximum safety. These should be installed according to manufacturer's instructions.

For further information see sections: "The Human Collision", "The Child's Special Needs" and "The Type of Seat" and tether strap installation diagrams.

Summary

1. Prepare demonstration by familiarizing yourself with the harness system and placement in car of the model to be shown. Prepare handouts.

2. **Placement of child:**

   (a) adjust harness straps if first time in use, or weather change has caused change in child's bulk;

(b) place child upright, buttocks against seat back;

(c) adjust all straps to fit securely.

3. **Placement of CRS:**

(a) rear seat preferred;

(b) secured to forward-facing vehicle seats with locking backs. Head rests down, arm rests secured;

(c) seat belts must secure the CRS firmly. Check type, and purchase locking device if necessary. Shoulder harness and lap belt positioned according to manufacturer's instructions;

(d) until the child sits alone and weighs about 9 kg (20 lb.) place the CRS facing the rear, then change to forward-facing child seat, or alter the convertible seat according to the manufacturer's instructions, to hold the child upright.

Placing a newborn infant into a rear-facing infant carrier

— Place the infant, buttocks first, into the seat. Rolled towels placed on either side add stability, securing the head and body when they are small.

— Fasten the harness over the shoulders. It should be tightened to about one or two fingers' width from the body, and the retainer strap pushed up on the chest.

— Any extra warmth can be provided by blankets over the top of the harness.

Placing a rear-facing infant carrier into the vehicle

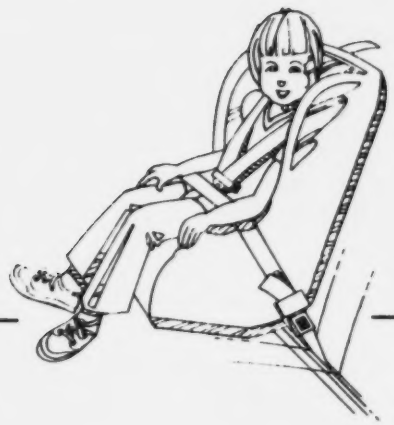
— If travelling alone, place the infant carrier in the front seat. The child may be dressed, put into the seat and harnessed in the house, and then carried out to the warmed car. The under 9 kg (20 lb.) child always travels facing the rear.

— Fasten the infant carrier into the car by using the seat belt. Thread it through the slots provided in the seat.

— Tuck the shoulder harness behind the lip of the seat.

— Check that the harness is over the shoulders and the retainer strap up on the chest.

Life is Precious.
Buckle Them In.



5. discussion points: film

Discussion Points from the Film "Life is Precious. Buckle Them In."

The film "Life is Precious. Buckle Them In " is produced in such a way that the pediatrician narrating the film presents four stages in a young child's life when special protection is needed in a car. These stages are: the fetus, the newborn, the toddler and the preschooler. With an explanation of the "human collision" and the need for restraint systems, the viewer is taken through each stage, with an explanation of the type of child restraint that can be used, the method, and what can be done in situations such as car pooling or when a seat is not available.

Some parts of this film may be more important than others for a particular audience. For example, in a pre-natal class the audience will consist mostly of first-time parents and they will need more emphasis on the newborn and less on the older child and the child seat, tether strap and lap belt for the preschooler. In this situation, it may be advisable to repeat the first two stages of the film after the discussion period.

A 14-minute film can only briefly cover each topic, but if time allows the educational value of the film can be greatly enhanced through a "hands on" demonstration of a child restraint seat, and a discussion period.

After seeing the movie, a demonstration of the use of an infant carrier and/or a convertible car seat will give the opportunity for a close-up view of the harness fastening, the tether strap and other items mentioned in the film. As the car lap belt is essential to the use of any seat, a spare seat belt, or even a paper strip should be used in the demonstration. (See Demonstration section of manual for details page 4.1). By handling the straps of the infant carrier, prospective parents can gain confidence in their use. Also, health care professionals will feel more comfortable if they are familiar with the seat's components when they remind parents to use child restraints.

The discussion points will give greater depth to the film. By drawing from the leader's knowledge and the group's experience, a deeper understanding of the subject can be reached, which will serve to reinforce and clarify certain points. The suggested topics have been chosen with a view to expanding the topics with any audience and the notes give some points that can be raised during the discussion.

The section following, 'Other Questions That May Be Raised', suggests some of the more frequently asked questions and appropriate answers. As the subject is presented, people may find other topics being raised. It is a good idea to note these with the answers and add them to this manual for future use.

The film is available in English or French and may be purchased (see Resource Guide, page 7.1). Contact a representative listed in People to Contact (see page 8.1) for further information on the availability of the film in your area.

Discussion Points

1. Why should physicians such as Dr. Williams be concerned about the way their patients travel with their child in the car?

— A doctor sees the results of collisions. Dr. Bruce Hendrick of Toronto Hospital for Sick Children is quoted (Ontario Traffic Safety Bulletin, September 1969) as saying:
"Some children (involved as passengers in car collisions) become total care cases and are institutionalized. Some become grossly retarded. Or there can be paralysis to the arms or the face, or they have plates in their heads. The brain is not the same as other parts of the body. It never heals with new brain tissue, but with scar tissue."

— By encouraging preventive medicine through safety education as well as immunization and nutritional advice, the doctor is trying to ensure the child will grow strong and healthy, and is given every opportunity to achieve his potential.

2. Why should parents be encouraged to take the baby home from the hospital in a child restraint seat?

— There is now way of knowing when a collision will occur. Although the desire is to hold the baby in the arms, in a collision the baby may fly out of the arms and be crushed by the adult's weight. The baby might also hit the windshield or be thrown out of the window into the traffic. There will be a life-time ahead to cuddle the child, so it is worth the wait until safely home. Some people may not understand the importance of car safety, and will talk about the loss of bonding. However, the mother is always close by in the car and shows love by caring about the safety of the baby.

— By planning ahead for this first trip in the child restraint, there is also an implication of the start of a regular habit for the family. A child who has never travelled any other way in a car is more likely to feel secure when harnessed and will want to continue that way. When it reaches the naturally rebellious stage around two years of age, the parents will also be so accustomed to the satisfaction of knowing the child is travelling safely, that they will not likely be persuaded to allow the child to have its own way. Coping with the fuss and crying of a child not wanting to be buckled in will be very minor compared with the problems and crying resulting from a serious injury if a collision should occur.

3. Why is it important to read the manufacturer's instructions before buying the seat, after buying the seat, and at various stages in the child's development?

— When a choice is to be made about which seat to buy, the judgement cannot be made wholly on the seat's appearance, or based on a friend's experience. The labels and manufacturer's instructions must be read to check the different design features:

(a) the seat belt is fastened in different places; some across the front of the

seat needing to be re-fastened every time, some threaded through the metal grooves at the back. This can be left fastened permanently, but you should check that the belt length and seat width are compatible with fastening it tightly;

(b) there are different angles at which the seats are placed for infants and children, and the methods by which you alter those angles;

(c) the harnessing of the straps, the placement, re-threading and buckling are not the same on each seat;

(d) there are different types of seats; some for children from birth weight to 7.9 kg (17 lb.) or 9 kg (20 lb.) only, and some only for children over 9 kg. Others can be used rear-facing from birth until the child reaches 9 kg and then the direction is reversed.

— Once the seat is home and ready to be installed, the manufacturer's instructions should be read in detail and followed step by step to ensure correct installation and use. The harness should be adjusted for the correct fit, one to two finger breadths away from the chest. If being used facing forward, the tether strap bolt has to be installed.

— Everyone in the family who will be travelling with the child should be made aware of the seat's correct use.

— If the seat is lent or given to someone else, the manufacturer's instructions should go with it, otherwise it could be used incorrectly and not serve its purpose.

— As the child grows, the seat use changes:

(a) between about six and ten months, the child reaches 9 kg (20 lb.) and sits alone. This is the stage for a change in seat; either from an infant carrier to a child seat, or from the infant, rear-facing, reclining position of the convertible seat to its more upright, forward-facing position with the tether strap installation;

(b) between three and a half and five years the child will usually outgrow the child restraint seat. Check the manufacturer's instructions for the designed child weight. It is usually 18 kg (40 lb.). At this stage the child can use a lap belt in the back seat. Be sure it is low on the hips, and only one person to each belt. Whenever possible place the child in the less hostile environment of the rear seat, away from the steering wheel, dashboard and control devices. Booster seats will improve the level of safety for children who have outgrown their safety seats. These seats will help to position the lap belt properly over the hips.

4. How do child restraint systems protect the child passenger in a motor vehicle collision?

— The special safety features built into today's cars, such as padded dashboards, lap belts and shoulder harnesses, and collapsible steering wheels, do not offer protection to a small infant.

— Children's bodies are fragile. In a crash, an adult cannot hold onto a child, and

there is a high risk of ejection onto the roadway.

— A child restraint is designed with a molded plastic seat covered with padding. The seat protects either side of the body, with the high back protecting the head and torso. The wide harness straps are designed to spread the forces over the body and against the strongest bony parts. They hold the child securely within the seat, preventing it from hitting the vehicle interior in a crash. The vehicle seat belt holds the child restraint seat in position within the car.

— When the seat is placed in the middle of the vehicle's back seat there is the additional safety factor of its being farthest from the car's exterior as the vehicle body crumples on impact. The rear seat is also a less hostile environment, away from the steering wheel, dashboard and windshield.

— The tether strap on a child seat is an essential item in holding the top of the seat securely, so that it does not extend forward or sideways on impact. With the bolt attached to the metal of the parcel shelf, the tether strap anchors the child seat against the vehicle seat back, while the seat belt secures the base to the car.

5. Why do you think a parent would not use a child restraint seat?

— Most parents are concerned for their children's welfare and would not deliberately expose them to danger. However, they do not perceive how dangerous driving in a car can be for a child, or the severe consequences of an accident. Nor do they understand the effectiveness of restraint systems in preventing or reducing injuries. A bad bump on the head could affect a child's learning ability or cause other physical problems that might lead to loss of earning ability later in life. Because of the relatively larger head-to-body size of a child compared with an adult, the child has a tendency to receive more head injuries.

— Child restraints are a relatively new item in baby equipment. Grandmothers know about cribs and high-chairs but not necessarily about car seats, so they may not offer advice in this area. The information must therefore come from other than the traditional sources.

— Although, like seat belts, restraints for children are designed for use in a car, they are not standard or even optional equipment and must be bought separately. Only recently have any car manufacturers included a pre-drilled hole for the anchor plate assembly and tether strap attachment. This installation has had to be made by the owner. If the necessary tools are not available, installation has to be done at a garage, incurring further costs.

— Child restraint seats sell for between $40 and $100, and people are confused about which of many types are the best. Once purchased, they have to be used correctly and, finding it no easy task to fasten an unwilling child into a harness in the middle of the backseat of a two-door car, some parents give up.

— Parents who would not hesitate to prevent a child from chewing on an electric cord or playing with a bottle of pills sometimes fail to see the use of a child restraint seat as a matter of equal life and death

importance. Therefore, the child is not disciplined to use the seat and is allowed to impose his demands on the parent.

— Parents who would willingly comply if given encouragement, do not receive advice or encouragement from the pre-natal teacher, physician or obstetrical nurse. In fact, these people may confuse the parent by suggesting the traditional hospital departure in the mother's arms, or by being unable to answer the parents' questions.

6. What would you suggest a parent do if the child cries when put into a child restraint?

— First, be sure the crying is due to the child restraint and not caused by hunger, wetness or discomfort from clothing. Especially in the Canadian winter, a child bundled up in a snowsuit will often get too hot in a heated car.

— When placing the child in the restraint seat, do it with confidence, speaking to the child about its special car seat and the upcoming trip. Smiles and a calm, reassuring voice will allay fears.

— To distract the child, some people keep special soft toys or cloth books just for car travel. (Hard objects could be an added danger.) Distracting the child by looking for things out of the window, singing songs, playing music on the radio or stories on a tape deck also makes for a pleasant journey.

— Attention and praise for good behaviour while in a child restraint will reinforce an attitude of safety in the car; letting the child ride loose a few times will only make buckling up harder the next time.

— With the very young, crying will often stop once the car is moving since movement lulls many children to sleep. This is not always so with older children who must remain upright in their seats, but the harness holds them securely and the head rest offers some pillowing if they sleep. Although some seats have a reclining position for sleep and manufacturers advertise it, most safety experts do not recommend this position for travel.

— Older children may enjoy the idea that race drivers, pilots and astronauts wear harnesses and have special seats. They may also like to use the seat in the house as their own T.V. chair.

Other Questions That May Be Raised

1. If children did not have to be in child restraint seats when I was a child, why is it necessary now?

— Over the years, development in many areas has ensured children of longer, healthier lives. Smallpox has been eliminated and polio, whooping cough, diphtheria and other serious childhood diseases have been controlled through immunization programs. Measles vaccine was developed as recently as the 1960's and rubella vaccine was introduced in 1970.

— Similarly, restraint systems for motor vehicles have been developed over the years. Tests have been performed using dummies, baboons, and volunteers on crash sleds to determine what happens to the human body in car collisions. In 1968, adult seat belts became standard equipment in American cars, but were obviously not suitable for restraining infants and small children. With the seat belt available as an anchoring strap, work went ahead on the development of child seats and of standards for their manufacture and use. By 1982 all seats on the Canadian market were covered by federal standards. Transport Canada produced federal standards for the infant seats (under 9 kg or 20 lb.) through the Motor Vehicle Safety Act, which the child restraint manufacturer must meet to ensure the seat will perform well in a crash situation. Previous regulations which came into effect in 1975 under the federal Hazardous Products Act had covered the seats for children weighing 9-18 kg (20-40 lb.), but not those for infants weighing less than 9 kg (20 lb.).

— It is only recently that parents can be secure in knowing that the seat they purchase has been designed with materials that will withstand crash forces, distributing the force of impact evenly over the child's body and limiting the child's movement so as to prevent injury from other parts of the so as to prevent injury from other parts of the vehicle. Finally, the child restraints now available are comfortable for the child and convenient for the parents to use.

2. What are the benefits of using a child restraint seat?

— Fear of injury is not always a good way of motivating people to use child restraint seats. Although people know collisions happen, most tend to believe they'll always happen to someone else.

— One advantage in having the child secured in the child restraint seat is that the child will stay in its place in the car. Sudden stops, swerves and turns of the vehicle, and even the child's moving about from seat to seat within the vehicle, were found to cause nearly 25 per cent of the child passenger motor vehicle injuries treated in the emergency room during a 21-month study in Irvine, California. Another hazard that is avoided is that of the unrestrained child falling from a moving car or through an open window or door.

— A restrained child does not become a hazard to others in the "human collision". When a car hits a barrier, it buckles and bends before it comes to a stop. An unrestrained person continues to move at the car's original speed until he is stopped

by impact with the car interior, other bodies, or the roadway.

— A restrained child is not as distracting to the driver as one who is moving about. Harnessed into the seat, he cannot touch the door handles, interfere with the controls or bother other occupants. Studies have shown that children's disruptive behaviour can cause or contribute to collisions.

— Many people find that children enjoy the seat. The older ones can see out of the window, while the secure feeling of the child-shaped seat along with the movement of the car put many to sleep.

3. How do I know that the seat I purchase meets the standards of an approved seat?

— A label must be attached to the seat giving details of its use and the manufacturer's compliance with the safety requirements.

— A seat purchased for use by a child weighing less than 9 kg (20 lb.) should list dynamic testing as one of the features, if it was manufactured before 1982. After 1982, the label should state that the seat meets Canadian Motor Vehicle Safety Standard 213.1 (CMVSS) under the Motor Vehicle Safety Act. For children weighing more than 9 kg (20 lb.) the label will state: "This product complies with applicable requirements of the Children's Car Seats and Harnesses Regulations."

4. Which is the best seat?

— The best seat is the one that will be used, and used correctly, every time the child is in the car. People should take time to shop around and talk to others about their preferences. One of the main problems, according to parents, is that the CRS will not fit into the family vehicle. Today there are many types and sizes of vehicles on the market with different seat styles and seat belt configurations.

— Whenever possible and before purchase, the child restraint seat should be taken out to the vehicle and tested. The manufacturer's instructions should be carefully read before purchase, and the projected lifestyle considered: e.g., will the seat be used in the baby-sitter's or grandparents' car, and will it fit into their car?; how many children are planned and would an infant carrier be used again or is a convertible a better buy?; would the child restraint seat be useful to carry the child when out of the vehicle, and is it light enough to do that?

5. What should I look for if I buy a second-hand seat at a garage sale?

— Try to find out who it belonged to and ask if it was ever involved in a collision. If so, it should not be used again but disposed of, as it may have defects not obvious to the naked eye. Check the structure for cracks and the metal framework for bending or denting — this will indicate damage.

— Pull the harness, buckle it and be sure all the parts are there. Check the stitching

and the cloth and, if they are worn, have the harness replaced by the manufacturer.

— Be sure the anchor bolt and tether strap are attached if the seat is for an over 9 kg (20 lb.) child. If they are not attached, purchase them from the manufacturer.

— Check for the label — it should be attached to the seat and will indicate whether it meets the federal standards. It will state compliance with CMVSS 213.1 for infant carriers or, if produced before 1982, it will include "dynamic testing" as one of its features. A child seat for children over 9 kg (20 lb.) must state that it "complies with the applicable requirements of the Children's Car Seat and Harnesses Regulations".

— A good guide is knowing that the model of seat is still available in the stores. Transport Canada tel.: (613/995-7293) or the Consumers Association of Canada tel.: (613/733-9450 or 416/977-2628) may also be able to give information concerning the seat and supply manufacturers' addresses.

6. How can I take three children in the back seat?

— Three child restraint seats may not fit in the back seat of some smaller model vehicles. However, three seats may fit in a larger car.

— Where only two sets of seat belts are provided it may be possible to install a third set by using the existing inboard anchor points for retention of a CRS.

— Two children in one belt is dangerous (even more so a child and an adult). In a frontal impact, the action of the belt could throw the children towards each other, banging their heads. The larger body may crush the smaller one or the pulling of the seat belt may put a heavier load on the smaller child's pelvis.

— Children should not travel unrestrained in the cargo area of a station wagon, hatchback, pick-up truck or van.

— In an emergency, a child can sit on the floor between the front and back seats. A baby can be placed with its head to the vehicle centre, in a box wedged on the floor. The baby should be well bundled up in blankets and, if possible, strapped into the box. The lower the child is placed, the less likely he will be to fly up and out of the car.

7. What should I do with the children I drive to nursery school in a car pool?

Agree on the rules to be followed:

- no more passengers than available seat belts;
- everyone in the vehicle to be buckled up in belt or child restraint — the parent's responsibility;
- no loose objects in the passenger area;
- children to enter or leave on the curb side or in a driveway;
- driver to pull off the road in a safe place before dealing with problems;
- any unruly children will not be carried in the car;
- establish safe routes, chosen to minimize hazards;
- open windows only a few inches to allow in the air, and do not allow children to hang arms or heads out of the window.

8. If I put my small child in a seat belt, the shoulder harness cuts across his face. What should I do?

— Not too many cars have shoulder harnesses in the back seat. However, since this is the safest place for a child to travel, use the lap belt fastened snugly, low on the hips, and seat the child in the rear.

— If the car has shoulder harnesses in all positions and the child's weight is no greater than 23 kg (50 lb.), it is recommended that you use only the lap portion of the belt. Tuck the shoulder harness section behind the child's back. When the child weighs more than 23 kg (50 lb.) the whole seat belt assembly should be used.

9. We have a van. Where do we put the child restraint seat?

— The child restraint seat can be installed on the vehicle seat with the tether strap anchored to the roof well back of the vehicle seat.

— Other methods involve more complicated installation — such as installing a standard rear seat and seat belts. This should allow the CRS to travel in the same direction as the vehicle, not sideways. When a CRS is used in a rear-facing infant position, and there is no vehicle seat or dashboard behind it, then a second seat belt must be installed to anchor it from both directions. Only convertible seats should be used, and the tether strap anchored.

— Any installation must be made to withhold the crash force, given that a child can exert a forward force of up to 544 kg (1200 lb.) It is best to seek expert advice for any installation of this type.

10. What are the common mistakes that people make when using child restraint seats?

— With a rear-facing infant carrier:

1) the baby is bundled into blankets before being placed in the seat. This means that the harness cannot be fitted securely about the shoulders, and the baby could slip out of the blanket cocoon in a collision situation. Blankets should be placed on top of the harness;

2) placing the seat facing forward before the child is sitting up alone and reaches the weight specified by the manufacturer, usually at 9 kg (20 lb). For maximum safety, the seat must face the rear, supporting the child's entire body;

3) not fastening the harness snugly over shoulders and keeping it in place with the chest retainer strap or plastic buckle. The harness should be one to two fingers' width from the body, and not twisted. If the harness slips off the shoulders the baby could fly out of the seat in a collision. If it is too loose there could be a nasty jolt as the body is thrown against the harness;

4) not fastening the CRS to the automobile seat with the seat belt.

The seat should be securely fastened, with all the slack taken up in the seat belt;

5) reclining the seat too much. Some manufacturers offer several positions for the seats. This should be carefully checked. If it is too low the baby could be launched out, head first, in a frontal impact.

— With a forward-facing child seat:

1) neglecting to fasten the tether strap to the anchor bolt. All child seats need the tether strap to prevent the seat from breaking or pivoting forward or sideways in a collision. The tether strap must be attached to the vehicle according to the manufacturer's manufacturer's instructions, anchored to a flat welded-in metal part of the car;

2) reclining the seat for the child to sleep. The CRS is safer used in an upright position and should only be reclined when used out of the car;

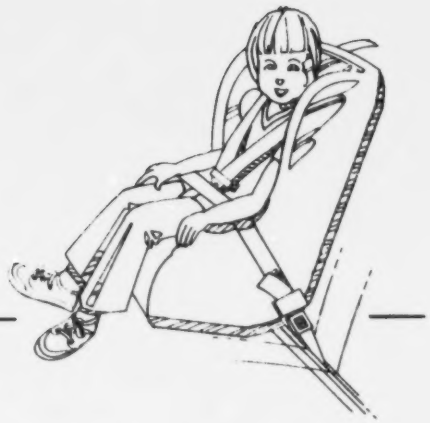
3) not fastening all the points of the harness. The shoulder, lap and crotch straps are designed to buckle together with the chest retainer keeping them in place. The harness acts to spread the impact forces across the bony parts of the body.

The straps should be one to two fingers' width from the body, and untwisted. If the harness is not fastened, the child cannot stay in the seat and has no protection;

4) not securing the CRS to the vehicle with the automobile seat belt. Without anchoring the CRS, it will fly out of the vehicle in a crash;

5) failing to thread the straps correctly. As the child grows or changes from a bulky snowsuit to spring clothing, the straps need to be re-threaded. If not threaded correctly they could slip loose. It's a good idea to do one at a time to copy the method.

Life is Precious.
Buckle Them In.



6. organizing a loaner program

Organization Of A Child Restraint Loaner Program

As the public becomes more and more convinced of the importance of the first, safe ride home from the hospital in a child restraint seat, health care educators, hospital administrators and concerned service clubs are encouraging this idea by forming rental agencies for the child restraint seat.

In areas where legislation makes it mandatory for the child to travel in a restraint system, there will be some segments of the population who will need the assistance of these rental programs to meet the legal requirements of providing their child with a seat.

The following section is presented in this manual so that those concerned with educating the public to use child restraints will also have guidelines to encourage the formation of a loaner organization.

What Is A Child Restraint Loaner Program?

Loaner or rental programs vary in their size and scope, but basically they are organized to supply child restraint systems at minimal cost to either the general public, or their own membership. In doing this, they encourage child safety in automobiles, both by offering the means to protect the child at an affordable price, and through the educational aspect of the program.

The majority of programs concentrate on infant carriers. They are loaned for a short-term (six-eight months) and fit all types of vehicles without installation hardware. The infant carrier is designed for the newborn, and can be used until the child sits alone and weighs about 9 kg (20 lb.). It is made of long-wearing plastic, is easily cleaned and can be re-issued many times with only periodic replacement of the padding. (See page 2.8).

Most organizations rent out the infant carriers for a six to eight month period with a deposit returned on receipt of the seat in good condition. The final cost to the parent is usually one-quarter to one-third of the retail purchase price. When the parent is on welfare, a group will often waive the deposit with a guarantee from the social worker.

There are also child restraints designed for the older child, one that is over 9 kg (20 lb.) and able to sit unsupported. These forward-facing seats come in various designs. Some are designed for the older child only, some are convertible and used in two modes, for the infant and toddler. (See pages 2.10 and 2.11).

In some "Try Before You Buy" programs parents are encouraged to test several types of child restraint seats in their car before purchase. Because they choose the most suitable seat and are satisfied with its performance, the parents tend to use the seat more frequently. Child seats or convertibles are often rented on a weekly or monthly basis. This is ideal for vacationing visitors, rented cars or travelling with friends. The only problem is the installation of the anchor bolt to hold the tether strap; it is not yet standard car equipment.

Convertible or child seats are initially more expensive and, if loaned, could be used by one child for three to four years. If a variety of seats are made available, a stock-keeping element is added to the program.

Some groups operate by selling the child restraint seat at cost, with a guarantee of a half-price refund when returned in good condition. The seat is then sold again at a reduced rate and with a similar guarantee. This system means the organization acts as a clearing-house, but cannot ensure supply at all times.

It is also important to check with local retailers and study the situation before setting prices. It is not wise to undercut retailers as they might then stop carrying the product. It is sometimes possible to sell a type not otherwise available.

Why Organize A Loaner Program?

As public knowledge concerning the safety level obtained in using a child restraint seat (CRS) grows, it is hoped that a CRS will become a standard item among the new baby's furnishings. But as today's young parents were probably not transported in CRS as children, the purchase is not assumed to be a priority. Unlike the crib, playpen or stroller, the CRS is regarded as an innovation. In fact, many grandparents may not be aware of their use, nor accept the concept that mother's arms are not the safest place while travelling in a vehicle.

Once pre-natal and postpartum curricula contain information on the "human collision" and the necessity for special protection to meet the child's anatomical differences, more prospective parents will face the decision of what to purchase. Many parents also face the additional expense of another family member to clothe and feed, or loss of income due to the mother leaving the workforce. They are glad, therefore, of an opportunity to rent an infant carrier, which is needed for only a short period. The loaner program may save an infant's life, just by making this safety feature affordable.

By offering economically priced CRS, a valuable service is provided for the local community. With increased restraint use in motor vehicles there is an opportunity to reduce deaths and injuries which, in turn, reduces costs for active health care and long-term care facilities. Parents who are conscientious about their child's safety are more likely to be safe drivers, and a child brought up in an atmosphere of concern for safe travel will likely become a more conscientious adult highway user. At the same time, the promotion of a safety program of this type increases public awareness of road safety generally, another benefit to the whole community.

The monetary profit gained from this community service is dependent on the costs for such items as staff, premises, advertising and replacement of seats. Some groups see the program as a public service and keep costs low, returning their profits to the program and continually increasing their stock of seats. Others limit the number of seats they loan and use the profits as a fund for other projects.

What Type Of Organization Is Needed?

Loaner programs have been in existence since the early 1970s and are operated by organizations as small as local pediatric clinics, safety councils, or church groups, or as large as insurance companies, automobile clubs or national service groups. For further information on loaner programs in your area, contact the provincial representative listed in People to Contact (see page 8.1).

This important activity, offering parents encouragement to protect their children from injury, is obviously one that can be espoused by many groups within the community. Health care professionals and hospital auxiliaries, automobile dealers and clubs, youth groups such as Scouts or Guides, Red Cross and St. John's Ambulance groups, safety councils, child birth and parenting associations, the "Y", service clubs, the police force, and many others, can become involved in various capacities.

Once the organization is in place, the program itself can be run by several groups of people, or by one or two energetic individuals. The main functions are co-ordinating education and promotion, financing, and the actual loaning and retrieving of the seats.

Before launching a community loaner program, careful preparation is needed. This is a service with a fairly constant demand long into the future. Clear goals should be set, recognizing that the aim is to increase the opportunity for the young child to travel safely in a motor vehicle.

Budgeting

1. Seat Supply

a) An initial activity is obtaining a supply of child restraint seats. A decision has to be made concerning which type to loan — infant carriers, convertible seats, child safety seats or a combination. Most groups prefer infant carriers, as they fit all vehicles, need no installation equipment and are loaned for a short term with a good rate of turnover.

Before buying any seat, check with the Consumer's Association of Canada to make sure it has performed well in service, and decide if parents will be able to use it correctly. Ask other groups which seat they have found to be the best. All manufacturers of child restraint seats must meet the standards set by Transport Canada. Their product will indicate this by stating that it has met the Canada Motor Vehicle Safety Standard 213.1 for use by a child under 9 kg (20 lb.). For the over 9 kg child, at present, the label states that the seat "complies with the applicable requirements of the Children's Car Seats and Harnesses Regulations."

b) To give the program credibility there should be a sufficient number of seats to meet the demand. A suggested goal would be enough infant carriers to service 20-30 per cent of the local eight month birth rate. Certainly, a decision should be made as to whether the goal is to service the demand, or to limit the program to the number of seats that can be processed by the group.

c) The seats can be purchased through a bank loan or with funds already on hand. It may be profitable to approach child restraint seat distributors or retailers, explaining the program aims and requesting assistance. Since programs promoting the use of infant carriers tend to increase the sale of child seats through local merchants, they may be interested in assisting. Funds could be raised especially for the program, or donations of seats requested.

Letters to parents of local school children, and posters in areas frequented by parents of young children, such as the supermarket and library, could request donations of second-hand seats. These should be carefully checked for defects and any damaged parts must be replaced. Any that do not meet present federal standards should be discarded.

d) As the program continues, money should be set aside for replacing the inner pads of the seats. These receive varied amounts of use, but may need replacement by about the third loan period. The harness may become torn and need replacement too.

Still later, the seats themselves will need to be replaced by new stock. **Any child restraint seat involved in a collision should be discarded.**

e) Some cars have a continuous lap and shoulder harness. In this case a locking device, purchased from the manufacturer, is needed to prevent the seat belt from working loose during cornering or sudden stops. A small supply of these locking devices should be available for loan. (See page 6.12).

f) If child seats are on loan, a supply of anchor bolts for the tether strap should be available. Some people will need two if they use more than one vehicle.

g) An additional community service can be offered by arranging with the local sheltered workshop for installation of the bolts for the tether straps. The workshop should be supplied with detailed instructions from the manufacturer concerning installation in different types of vehicles, e.g. hatchback, station wagon, van, etc. (See diagrams, pages 2.13, 2.14 and 2.15.)

2. Office Materials

a) **Paper and envelopes** are needed for letters to promote the program and for thank-you's for assistance. An organization letterhead could be printed on stationery.

b) **Forms** should be printed for rental agreements, (see page 6.11), instruction sheets, and reminder letters (see page 6.13). If the program uses the telephone to recall seats, a reminder letter might not be necessary. Copies of the manufacturer's instructions for the use of the seat should also be printed, so that each person can be handed written instructions at the time of renting the seat.

c) **Cash book and receipt slips** should be purchased to facilitate the bookkeeping and banking.

d) A **filing system** is needed for the rental agreements. File cards may also be made of names and addresses and records may be kept for program evaluation.

e) **Postage stamps** are an on-going requirement for the mailing of letters.

f) The rental of **office space** may be needed to conduct the loaner program, for receiving and distributing the seats and for doing the paperwork. In some cases space is donated; in others programs are run from a home.

g) A **typewriter** is useful for giving a business-like appearance to letters.

h) The **telephone** is usually a necessity. Where the program is run from a home there is often no separate listing. It is easier for people to find information if the number can be listed in the telephone directory under the program name.

i) The seats need some form of **identification**, possibly an identification number, a logo or symbol of the program or the name and telephone number of the organization. This can be put on with paint or indelible ink, or a label can be securely fastened to the seat. A small sticky label stating the return date and program telephone number can be applied at each loan.

j) **Cleaning fluids and materials** are needed to sanitize the seats before being loaned.

k) A supply of child restraint **informational** materials, i.e. brochures and local price lists, should be kept on hand. Some groups also have audio-visual aids used in promoting the program or which can be loaned to pre-natal classes. (See Resource Guide, page 7.1).

3. Staff

Most programs are run on a volunteer basis and no salaries are necessary for the organizers or workers. This has to be decided before budgeting.

4. Promotion

Although many promotional methods are free of cost, most programs use some advertising material. Lists of available material can be found in the Resource Guide section of this manual. (Page 7.1).

a) Pamphlets or brochures can be printed to explain the relevant vehicle safety concepts and to describe the loaner program. Alternatively, an accredited brochure can be obtained free of charge, and an insert, sticky label or rubber stamp detailing the loaner program attached to it.

b) Posters or flyers can be displayed giving safety information and the program details. These can be specially produced for the program or obtained through other channels. (See sample on page 6.8. This can be copied with the appropriate details added.)

c) Educational films are available explaining the reasons for using CRS and the correct way to use them. The organization can purchase or rent a film to use at promotional meetings, at workshops for organization staff and health care professionals, and at pre-natal, obstetrical, and parenting classes.

d) A permanent display can be designed and built for use in shopping malls and hospital waiting rooms. This could be used during safety week demonstrations.

5. Income

As the seats are loaned, cash from the service charges and deposits will be available for use in the program. Service charges are usually a quarter to a third of the cost, with a deposit dependent on the perceived risk of damage or non-return. The deposit will be available to the organization for the rental period.

If financing has been obtained by a loan, then principal and interest will need to be paid regularly. Many programs start with a small investment in seats, increasing stock as assets grow. Short term investments and savings accounts which offer regular interest protect the funds. The use of the money on hand, the accounting, and auditing, should be decided by the organization at the start.

"Buckle Up Baby"

infant restraint loaner program

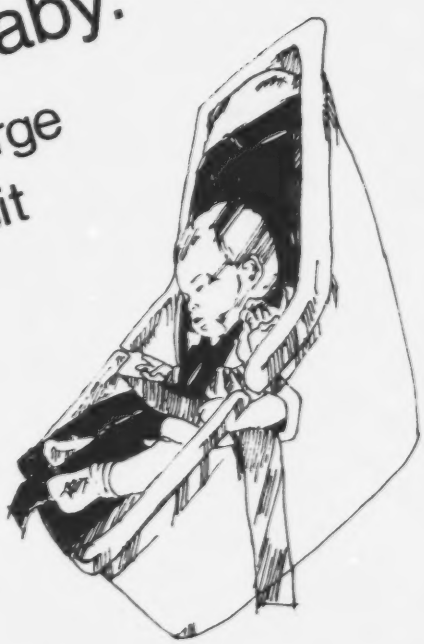
Rent a child restraint seat for your baby.

$ service charge

plus $ deposit

for months

Sponsored by:



phone:

It is best to make a reservation before your baby is born.

Location

The main criterion for the location is accessibility. Ideally it should be open during some evening or weekend hours and offer suitable places to park the car, especially if the seat is to be demonstrated in the car. If promotional material, letterheads, etc. are being printed, there should be some guarantee of permanency to the location.

Programs are operating from volunteers' homes, stores (selling children's clothing or furniture), offices of safety associations, hospital auxiliary stores, pediatric clinics, churches and many other locations.

The location needs to provide sufficient space to house any seats in storage. (It is presumed that in a well-run program these would be few in number.) The facilities should be suitable for the cleaning and office work, with a telephone available for conducting business.

A location that is visible to the public and listed in the telephone book acts as a promotional feature not available in the case of a private home. On the other hand, using a private home has the advantage of a volunteer being available at all hours, since she/he can schedule the work with other activities. Staffing a location on a regular basis with volunteers involves schedules and supervision. Ideally, a regular office staff would add the loaner program to their regular duties, for example, in an insurance company.

Sometimes a location can be used for a few hours each week and pick-ups and returns organized on the basis of that schedule, e.g., a church hall or community centre open for choir practice or bingo night. In this instance, the telephoning would have to be conducted elsewhere and a lock-up storage area provided for the seats.

Staffing

In setting up an organization for a loaner program, consideration should be given to the number of people willing to volunteer their services. The following activities can be handled by one willing worker or divided among several.

a) A **chairperson** can be appointed with responsibility for co-ordinating the program and speaking for the group.

b) A **person to be responsible for the distribution and collection of seats.** Description at end of section (page 6.11).

c) A **treasurer or bookkeeper** would be responsible for the financial aspects of the program. Regular audits should be arranged so that financial reports can be given to organization members.

d) A **secretary** can keep the minutes and organize committee meetings, handle correspondence, maintain files, and order materials.

e) **Publicity** should be organized systematically. Newsworthy stories and pictures can be sent to the media, displays can be mounted, and literature distributed. Contacts should be established with the local media, police forces, health care professionals, and service groups.

Some groups have to go slowly with promotion since the demand created is beyond their available supplies. However, every opportunity should be taken to distribute vehicle safety information. The group can also work with local merchants to maintain the sale of child safety seats, and keep their price lists up to date.

f) **Evaluation** of the program can be a useful tool. It provides figures for success stories, pin-points growth towards goals and can encourage the group in its activities. If this is done in the form of surveys, more than one person is usually involved.

The Loaning Activity

Prior To Rental:

a) maintain a **waiting list**. Parents should be encouraged to register well before the birth, and the pick-up of the seat scheduled for a week or so ahead of the birth date. The loan period may start with the birth, but it is important to have both parents there to see the demonstration. Most waiting lists give priority by order of registration, but some give consideration to families in economic need;

b) **call the person** to inform them the seat is available for pick-up. Stress that 10-15 minutes is needed for demonstration.

At Pick-Up:

c) **sign duplicate copies of the rental agreement**, one for the parents and one for the loaner program. Explain the liability agreement so it is fully understood. (See liability section page 6.20). If a label with the return date is being used, fill it in and attach it to the seat;

d) **collect the rental and deposit money**, hand out receipts. Indicate that if the seat is involved in an accident, it is to be returned at once and will be exchanged for a new seat at no extra cost;

e) **demonstrate the correct use of the seat**. (See liability section page 6.20). Use a doll or teddy bear, and show the parents how to harness the child into the seat. This demonstration is an important aspect of the loaner program that is not available to someone purchasing a seat in a store. Be sure they have a copy of the manufacturer's instructions. Information on car safety for the whole family, such as a brochure, is also helpful. Detailed instructions on demonstration are found on page 4.1.

Some types of cars have continuous seat belts (i.e. the latch can run up and down the webbing). If so, a **locking clip device** should be threaded onto the belt. The restraint would be held firmly in an impact when the belt automatically locks, but may work loose with a swerve or sharp corner and the restraint fly off the seat. The locking clip must be removed when the belt is used by other passengers. These should be available for rental with the infant carriers or child restraint seat.

All types of **child seats** (used for 9-18 kg (20-40 lb.) children) involve the **installation of a bolt** attaching the tether strap to the parcel shelf or station wagon floor. Correct installation is essential and arrangements could be made to issue the bolt prior to the seat rental so that installation may be complete. (See diagrams on pages 2.13, 2.14 and 2.15).

f) **file** the rental agreement by return date.

At A Later Date:

g) **mail a reminder letter** giving the return date on the seat. If the child has not yet reached 9 kg (20 lb.) and is not sitting on its own, the infant carrier will still be needed and arrangements should be made for an **extended loan**. (See page 6.13).

If an infant carrier is on loan, the letter should include a **shopping guide** for child seats. The guide should be kept up to date and contain a list of the CRS on the market, their main features, where they can be purchased locally and the current price. For the benefit of the person who is responsible for keeping this up to date,

keep a list of distributors, manufacturers and retailers with contact names, addresses and telephone numbers.

If a child restraint seat is on loan, the enclosure stresses that the child, if it has reached 18 kg (40 lb.), will now use the lap portion of the seat belt, placed low on the pelvic girdle, and that a back seat position is safest for the young child.

If a telephone is used to recall seats, this information could be given at the time of initial rental;

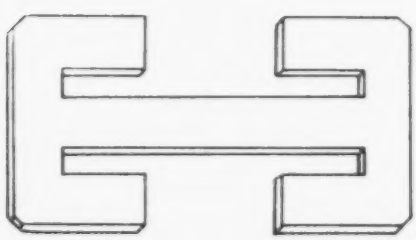
h) **inspect the seat** when it is returned and if there is no major damage, return the deposit. Enquire if the seat was involved in a collision, in which case it should not be used again. At this time, ask if the parents have provided for the child's safety now that the loaner program seat is returned.

Offer assistance and advice. Walk out to the car to advise on whether the replacement is being used correctly.

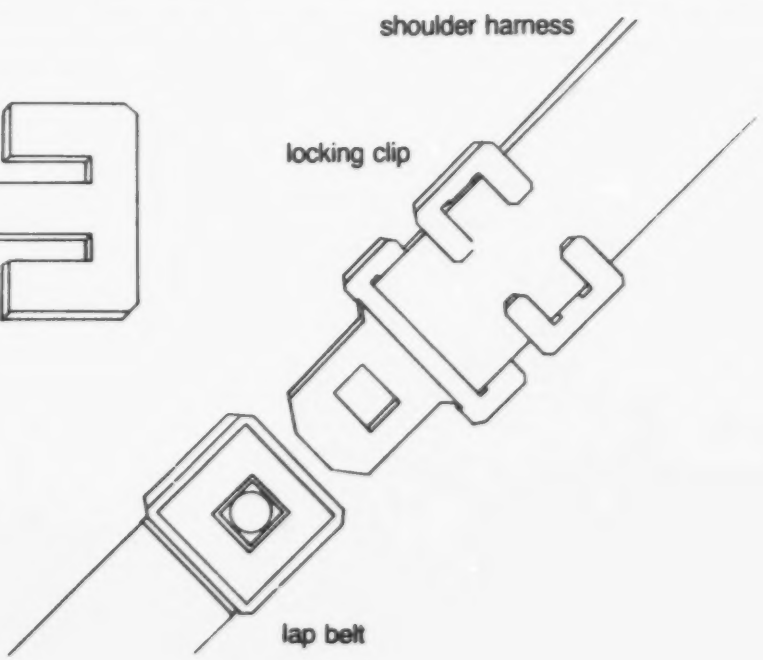
If a replacement has not been provided, the parents may be interested in arranging a short-term extension loan until the new one is purchased, or the group can have some child seats available for short-term loans.

i) **clean the seat** thoroughly — this could be arranged as part of the terms for receiving the deposit back in full. Carefully check each part for damage. The harness and padding can be replaced by new parts from the manufacturer. If the metal frame rattles, tighten the screws, but if it is loose or twisted the seat should be destroyed. If the manufacturer's label is not clearly visible, replace it.

Locking Clip



For maximum security a locking clip should be attached to one-piece inertia reel belts. Remove when the belt is used without the child restraint seat.



Sample letter to parents reminding them to return the Infant Seat

Dear _____:

Your infant restraint seat is due to be returned by _____.
If your baby is 9 kg (20 lb.) and has already outgrown it, we would appreciate having it back early because other babies are waiting for seats. You have done something very important for your baby by teaching him or her that we always ride buckled up.

Have you decided how you will buckle up your baby after you return the rental seat? Now that you have established a good safety habit, you don't want to spoil it by allowing your baby to ride unprotected. Moreover, once babies get used to riding unrestrained, it can be very difficult to buckle them up later.

We (do, do not) (rent, sell) forward-facing restraint devices for older children. (Note: If you do offer restraints for toddlers, give details here.)

Enclosed is some information that might help you decide which child restraint would be best for you. If you have any questions, feel free to call me.

When you are ready to return the infant restraint, it would be a good idea to call me first to be sure I will be available to refund your deposit.

Sincerely,

Jane Doe

Publicity And Education

It is important for loaner organizations to promote vehicle safety in the community. By doing this they become the local authority and should therefore keep well informed.

Workshops can be held to promote the program aims to health and child care professionals. Members of the loaner organization also need to be prepared themselves to speak authoritatively to the parents of young children. Publicity helps to create support from interested parties and serves as a reminder to parents to buckle up the children.

If other groups or organizations are approached for co-operation, they should be clearly informed about the program. The concept of the "human collision" and the need for safety seats designed for children can be explained and suggestions can be made for their participation. Materials can be provided for their use. (Suggestions for presentations may be found elsewhere in this manual; see page 3.1.)

Below are suggested activities for the many community groups that can become involved in the promotion of the loaner program.

a) The Police:

The police are invaluable in advising parents travelling with their children about the correct use of the child restraint. In areas with child restraint legislation, they will of course be encouraged to enforce the law.

Some police forces are willing to distribute safety literature. The police usually have access to media time slots for promoting safety and these can be used effectively to describe the program and its aims.

The police keep motor vehicle collision reports which state whether a CRS was in use. Media accounts of collisions where the seat served its purpose in saving a life can be prepared from the police reports, and both the police and the media should be alerted to the value of this type of coverage.

Police community officers should include the CRS information in the safety presentations made to schools, and provide literature to be sent home with the students.

b) Physicians:

The obstetrician and especially the pediatrician and general practitioner have considerable influence on parents with respect to children. They are authority figures and as such can play an important community role in emphasizing the need for children to travel safely.

The loaner program can provide posters and brochures to be displayed in waiting rooms. The physician can involve the pregnant woman and new parents in discussions concerning the importance of restraint systems.

Young children visiting the doctor's office can be encouraged to report their use of a CRS by being awarded a simple prize suitable to their age, or a star on their chart, the important aspect being recognition and praise for travelling in a safe manner.

c) Public Health Nurses and Pre-natal Class Teachers:

The public health nurse and teacher has contact with the pregnant woman through pre-natal classes. Here the information can be presented, and strong encouragement given to

register with the loaner program well before the birth.

Car safety brochures can be handed out, a movie shown, and demonstrations given on the use of an infant carrier. A list of suitable brochures, posters, movies, slide shows and demonstration techniques are presented elsewhere in this manual.

The public health nurse can raise the subject again during the first home visit, and make a tactful check of the child restraint use in the car.

d) Obstetrical Nurses:

Arrangements should be made to work closely with the obstetrical wards in the local hospitals. Posters and brochures can be displayed, and a movie shown and discussed. A display could be mounted in the waiting room, and the use of a child restraint seat for infants demonstrated along with the baby-bathing that is often taught. This can be done by the nurses or by a qualified volunteer. In some hospitals each newly made bed receives a brochure and the loaner phone number to call for delivery of a seat.

The nurses should be trained in the use and installation of the infant carrier, and be active in sending the baby home from the hospital secure in its child restraint rather than the traditional mother's arms. A workshop could be held for nurses to encourage and train them. The nurse should be asked to encourage parents to bring the child restraint seat to the hospital before the discharge date. In this way the straps can be adjusted in relative calm before the discharge time.

e) Child Birth and Parenting Groups:

As these groups are a means of reaching concerned parents, they should be provided with material concerning vehicle safety and the loaner organization, and encouraged to include the concept in their programs.

f) Day-Care/Early Childhood Education:

The children attending these programs are usually at the child safety seat stage. If the loaner program does not provide these seats, it could still be active in promoting their use through educational materials.

g) Community Retailers:

Many retailers are willing to show interest in community projects by displaying posters or selling raffle tickets to raise money. They could also be approached to use their premises for a safety display. Their assistance should be recognized publicly in the media. It is important not to take business from local retailers, but to show them that the rental of infant carriers tends to increase sales of child seats.

h) The Media:

Local radio, televison, and newspapers are ideal media for creating interest in the loaner program. Stories of program events can be presented, for they provide education on both the importance of CRS and the loaner program itself. Reporting of collisions could include a statement concerning the use of restraint systems in each instance. The media can also be encouraged to include safety tips during busy traffic periods and holiday weekends.

The loaner organization can plan various events promoting interest in the program that can be reported in the media:

- observed use studies;
- annual reports of loaner rates;
- loaning the first seat;
- pictures of the New Year's baby leaving the hospital in an infant carrier;
- speaking to service/community groups;
- contests as money-raising activities;
- meeting goals for donations or growth;
- profiles of volunteers involved in the program;
- interviews with a local physican or police chief on the importance of CRS;
- a safety week involving all aspects of safety, or with emphasis on traffic safety.

Evaluation

The program evaluation can be conducted through observational surveys and questionnaires. It serves to encourage participants, to produce goals for fund-raising and to provide figures for publicity, and is often of assistance to the start-up of other programs.

If the co-operation of the hospital staff can be gained, it would be a good measure to keep a count of the babies leaving the hospital each day, and a record of whether they were leaving in an infant carrier. This would be an ongoing study with, for example, monthly totals which would indicate the changes as the program comes into being. (See in-hospital instructional program, page 3.7.)

a) Observational Studies:

Before the program starts, it is valuable to obtain an estimate of how many children in the community are travelling in CRS. This type of survey can be conducted in shopping centres, recreation areas, day-care centres, etc. People should be stationed in a position where they can see into the cars, preferably without stopping them. Cars can be counted and for each car with child passengers a note made as to whether the child is restrained, and how. Note if the device is appropriate for the age and size of the child, and if it is being used correctly. This type of study should be repeated at the same location, for the same number of hours, at regular intervals through the year. (Slide training program available "How Do Children Ride": see #5, page 7.3).

b) Questionnaires

Studies can be conducted by handing out or mailing a questionnaire to those renting seats. Changes in attitude could be probed, e.g., were all members of the family buckling up more often now that a seat was on loan from the program? This would give an indication of the program's effectiveness in increasing vehicle safety.

As parents register for a seat they can be asked where they heard of the program. A tally could be kept of the answers which would indicate the more successful promotional areas.

c) Counts

Counts should be kept of the seats loaned, the length of time they are used, the number of efforts made to recall them, etc. A careful tally should also be kept of the quantities of promotional material sent to other groups. These counts along with the financial statements will indicate the program's ongoing organizational success.

Observed Use of Child Restraints

Birth to sitting up alone — 9 kg (20 lb.)	Seat rear facing, attached by seat belt, child harnessed	Seat incorrectly used	Seat in car, not being used by child	Can't tell use of seat, child in it
	4	1		
	Child held on lap	Child in travel bed etc. — not for car use	Child in seat belt	Child completely unrestrained

Sitting up alone to 4 years — 20 kg (45 lb.)	Seat forward facing, harness fastened, seat belt and tether strap attached	Seat incorrectly used	Seat in car, not being used by child	Can't tell use of seat, child in it
	Child held on lap	Child travelling in something other than CRS	Child in seat belt	Child unrestrained

Observed use of Child Restraints

(Site information)

(1) Where did you observe? (Check one of the following)

- ☐ day-care centre
- ☐ nursery school
- ☐ grade school
- ☐ shopping centre
- ☐ church
- ☐ doctor's office
- ☐ amusement centre or park
- ☐ restaurant
- ☐ gas station
- ☐ other _____

(2) Address: Street _____

City _____

Nearest cross street _____

(3) Temperature:

- ☐ hot and sticky
- ☐ warm — no jackets needed
- ☐ cool — light jackets
- ☐ cold – warm jackets, snowsuits

(4) Road conditions:

- ☐ dry
- ☐ wet
- ☐ snow or ice covered

Observer's name _____

Organization _____

Observer's address _____

_____

Telephone _____

Date of Observation _____

Time of observation: from _____ to _____

Comments: _____

_____

Liability

When loaner programs are being planned there are always concerns expressed about the extent to which the group might be held liable for damages if a child using one of their seats were injured.

Based on the assumption that the whole operation is a non-profit one, i.e., that it is a community service and not a business, the group and/or its members will only be liable:

a) if the group and/or member knows of a defect in the seat itself or, as a reasonable person, ought to have known of the defect and failed to warn the lessee of it; or

b) if the group and/or members failed to provide written instructions on the use of the seat to the lessee and, if necessary, to make sure the lessee thoroughly understood the manufacturer's instructions on anchoring and using the seat, and failed to explain and demonstrate the instructions clearly.

It is therefore very important that:

a) the newly purchased and returned seats be thoroughly examined for defects and missing parts before being re-issued. **Discard any that have been involved in a collision;**

b) all persons responsible for issuing the seats to lessees be thoroughly trained in the manufacturer's instructions and be able to explain use and check installation;

c) clearly written instructions be made available with every seat.

Rental agreements should contain the following clauses to protect the committee and its members:

"It is expressly understood and agreed by the lessee that the rental service provided by the (name of organization) is not a dealer in this type of equipment and makes no warranty express or implied as to the fitness of the seat for the purpose for which it is rented;

The lessee agrees not to bring any action against the (name of the organization), or any of its members for any loss or damage to persons or property arising out of the use of the (name or type of seat) by the lessee or by anyone using the seat with the consent of the lessee."

The agreement should end as follows:

"This agreement is binding upon the heirs, executors, administrators or assigns of the lessee."

Some groups record driver licence numbers or names and addresses of relatives of the lessee to aid in tracking them down if the seat is not returned.

Sample Rental Agreement and Waiver

BETWEEN: (name of the organization) hereinafter referred to as the Lessor and _____ hereinafter referred to as the Lessee.

THE LESSEE HEREBY AGREES to lease from the Lessor ____ infant carrier(s), identification number(s) _____ from the ____ day of _____ A.D. 19 ____ to the _____ day of _____ A.D. 19 ____ for the sum of Twenty Dollars ($20.00).

IT IS FURTHER AGREED that if the said infant carrier(s) is/are returned in the same condition as when the lease commenced, normal wear and tear excluded, the Lessor shall refund to the Lessee the sum of Ten Dollars ($10.00) but if the said infant carrier(s) sustained any damage, a portion or all of the refundable amount may be withheld.

IT IS FURTHER AGREED that if the infant carrier(s) is/are not returned by the _____ day of _____, A.D. 19 ____, a penalty of One Dollar ($1.00) per week will be charged to the Lessee and will be payable up to and including the date the infant carrier(s) is/are returned.

THE LESSEE ACKNOWLEDGES that the Lessor is supplying the infant carrier(s) at a purely nominal cost as part of a public service project in the interests of public safety. It is expressly understood and agreed by the Lessee that the rental service provided by the (name of organization) is not a dealer in this type of equipment and makes no warranty express or implied as to the fitness of the seat for the purpose for which it is rented.

The Lessee agrees not to bring any action against the (name of organization), or any of its members for any loss or damage to persons or property arising out of the use of the (name or type of seat) by the Lessee or by anyone using the seat with the consent of the Lessee.

This agreement is binding upon the heirs, executors, administrators or assigns of the Lessee.

Seat #_____ Date taken: _____ Date due:_____
Condition of seat noted: _____
Dated at (place) this _____ day of _____, 19____

_____ _____
Witness

_____
Signature of Lessee

_____
Address

_____
Telephone Number

Life is Precious.
Buckle Them In.

7. resource guide

Resource Guide

As of the date of publication, the following lists indicate the printed material that has come to the attention of the author. It is not listed in any order of preference, but presented as a guideline for those searching for materials to use in the development of their programs.

Please note that the American materials may show seats not available in Canada. It is also possible that the usage shown may not conform with Canadian safety regulations, e.g., requirements to anchor the tether strap.

Educational Materials

Films

1. "Life Is Precious. Buckle Them In". Pediatrician explains "human collision" in motor vehicle collisions. The pregnant woman, newborn infant, toddler and young child are shown with their special requirements for restraint systems. 16 mm and 3/4" video cassette 14 min., English/French. May be purchased for $85.00 plus tax from: Film House, 22 Front St. W., Toronto Ontario M5J 1C4. 416/364-4321. Further information may also be obtained by contacting one of the representatives listed in People to Contact.

2. "Car Safety: Don't Risk Your Child's Life" educates parents about selection and proper use of child restraints. Includes dramatic footage of crash tests with child sized dummies. 16 mm, $180.00. Video cassette, Super 8 — 12 mins. Physicians for Automotive Safety, 14 Rye Ridge Plaza, Port Chester, NY 10573. 914/253-9525.

3. "Infants and Children in Car Crashes — Restrained and Unrestrained". Insurance Institute for Highway Safety — film shows dynamics of automobile crashes and how restraint systems protect young children. 16 mm, ($90.00) Super 8, ($80.00). Video cassette 10 min. ($40.00). Also a 5 min. edited version. Silent. IIHS Watergate Six Hundred, Washington, DC 20037. 202/333-0770.

4. "Secure Your Child's Future" describes proper seat belt use for entire family. 16 mm, $102.00, 14 min. English/French. Crawley Films, 19 Fairmont Avenue, Ottawa, Ontario, K1Y 3B5. 613/728-3513.

5. "Dice in a Box" discusses operation and use of seat belts, Canadian child restraints and why pregnant woman should wear seat belts. 16 mm, $95.00, 22 min. Film House, 22 Front Street, W., Toronto, Ontario, Canada M5J 1C4. 416/364-4321.

6. "The Perfect Gift" — designed to motivate new and expectant parents to protect their infants in the best possible way. Emphasizes the necessity of CRS use on every ride. 16 mm, 19 min. Purchase $380.00, rental per week $50 plus shipping. Visucom Productions, Inc., P.O. Box 5472, Redwood City, CA 94063. 415/364-5566.

7. "RX for Safety" — videotape designed to motivate health professionals to make child passenger safety a routine part of their practice. Features activities of Marshall Blondy, M.D. For free copy send blank 3/4" video cassette to Michigan OHSP 7150 Harris Dr. Lansing, MI 48913. Loan from Ministry of Transportation and Communications, 1201 Wilson Avenue, Downsview, Ontario M3M 1J8. 416/248-3210.

8. "Child Restraint with Dr. Ron Ailsby" a 12-minute program available on both 16 mm film and video tape. Saskatchewan Safety Council, 348 Victoria Avenue, Regina S4N 0P6. 306/527-3197.

9. "For Jamie". A 24-minute film suitable for a general audience of adults giving an emotional portrayal of the importance of protecting children in cars. Focus is primarily on children aged nine months to eight years. Video cassette and 16 mm film $425.00. Visucom Productions Inc., P.O. Box 5472, Redwood City, CA 94063. 415/364-5566.

10. "Sièges de voitures pour enfants", 6-7 min. silent 16 mm film in colour. Available at

rental price of $25. per week, plus freight charges and 9% prov. tax, from: Suzanne Monange, Directrice de l'information et de relations publiques, Ligue de sécurité du Québec, 6785, ouest, rue St-Jacques, Montréal, Québec, H4B 1V3. (514) 482-9110.

Film Strips

1. "Do You Care Enough" designed for post-natal use in hospitals. A young couple tells how they selected a safe infant car seat for their new baby. 7-min. film strip with silent — sync audio cassette $18.00. Also has poster reinforcing the message. Film Loops Inc., P.O. Box 2233, Princeton, NJ 08540, USA.

Slides and Tapes

1. "Give us a chance" can be reproduced. Slide and sound presentation emphasizing proper use of child restraints can reduce injuries including case histories of children. 20 min. MVMA Suite 300, 1909 K Street NW, Washington, DC 20006. 202/862-3900. Loan from Ministry of Transportation and Communications, 1201 Wilson Ave., Downsview, Ontario M3M 1J8. 416/248-3210.

2. "Childsafe" — in-hospital education program for new parents explaining need for effective child restraint. 60 slides with tape cassette and script booklet $46.80 + 15¢ for leaflets. The National Safety Council, 444 North Michigan Ave., Chicago, IL 60611.

3. "Children's Auto Safety", Slide/tape Program with a registered nurse and member of Seat Belt Survivors Club. 10 minutes. Saskatchewan Safety Council, 348 Victoria Ave., Regina, Saskatchewan S4N 0P6. 306/527-3197.

4. "Travel With Baby", 80 slides and audio cassette. Runs about 13 minutes. Features Cosco/Peterson line of car safety seats, but explains features of other models. Available in English and Spanish. One week free loan or may be purchased for $25.00. Kidde Recreation Products, 543 Conestoga Blvd., Cambridge, Ontario. 519/623-9680.

5. "How Do Children Ride?" — 30-minute slide training program for student or community groups. It is designed to quickly prepare volunteers to conduct accurate surveys of the use of child restraints in the community. Available only on loan from the Office of Highway Safety Planning, 7150 Harris Drive, General Office Building, Lansing, Michigan 48913. 517/322-1942.

6. Public service announcements in French: five 30-second television spots, video cassette 3/4" with Yvon Deschamps and his children; one 60-second radio spot with Yvon Deschamps. Arrangements for use can be made with: Québec Safety League, 6785, ouest, rue St-Jacques, Montréal, Québec, H4B 1V3. (514) 482-9110.

Promotional Materials

1. Bumper stickers, dashboard stickers, buttons and shirts. "The First Ride. A Safe Ride" program. American Academy of Pediatrics, P.O. Box 1034, 1801 Hinman Avenue, Evanston, Illinois, 60204. 312/869-4255.

2. "Caution, Baby In Back Seat" bumper sticker by Canada Jaycettes and Bo Peep

Nursery Products Ltd. Free. P.O. Box 221, Station U, Toronto, Ontario M8Z 5P1

Brochures and Booklets (most of these are free in small quantities)

1. "Life Is Precious. Buckle Us In" English/French. Ministry of Health, 9th Floor, Hepburn Block, Queen's Park, Toronto, Ontario, M7A 1S2. 416/965-3101. Ministry of Transportation and Communications, 1st Floor, West Tower, 1201 Wilson Avenue, Downsview, Ontario M3M 1J8. 416/248-3501. Ministry of Community and Social Services, 7th Floor, Hepburn Block, Queen's Park, Toronto, Ontario M7A 1E9. 416/965-7252.

2. "What You Should know about Seat Belts", Ministry of Transportation and Communications, 1st Floor, West Tower, 1201 Wilson Avenue, Downsview, Ontario M3M 1J8. 416/248-3501

3. "Seat Belts and Safety Seats — Protection for the Whole Family" Traffic Safety Programs, Highway Traffic Board, SGI Building, 12th Floor, 11th Avenue, Regina, Saskatchewan S4P 3V7. 306/565-5318

4. "Don't Risk Your Child's Life" Physicians for Automotive Safety Pfp. Box 208, Rye, New York 10580

5. "Fragile Cargo", discussion on reasons for using a child restraint.

   "How to Operate an Infant Restraint Loaner Program", a manual produced in cooperation with the Ontario Jaycettes.

   "Buckle Up Baby", brochure on the organization of loaner programs.

   Ontario Safety League, 82 Peter Street, Toronto, Ontario, M5V 2G8. 416/593-2670.

6. "The Child Safety Book — How to Keep your Child Safe in and Around the Car", No. 11 Shell Helps, P.O. Box 7092, Adelaide St., Toronto, Ontario M5C 2K7

7. "Because we love them so .... to educate an adult .... to protect a child" (Bilingual), Quebec Safety League, 6785, ouest, rue St-Jacques, Montréal, Québec, H4B 1V3, and the Canadian Paediatric Society, Centre Hospitalier Universitaire, Sherbrooke, Quebec.

8. "Will You Give Your Child the Perfect Gift?", Transportation Hazards Committee, American Academy of Pediatrics, California District IX, P.O. Box 2134, Inglewood, California.

   "Le Dona Usted A Su Nino El Regalo Perfecto", Spanish version. California Centre for Child Passengers Safety, 924 Westwood Blvd. Suite 520, Los Angeles, California 90024.

9. "Child Restraint Systems for Your Automobile" DOT HS 803 307, Dept. of Transportation, National Highway Safety Administration, Washington, D.C. 20590. An aid to choosing a child restraint seat.

10. "This is the Way the Baby Rides", Action for Child Transportation Safety. Focus on infant carriers and convertible seats. ACTS Box 266 Bothell, WA 98011.

11. Education package for hospitals — sheets to health care professional and to parent with informative message concerning child restraints. $10.00 per 100. English/French, Canadian Institute of Child Health, #803,

410 Laurier Avenue West, Ottawa, Ontario K1R 7T3. 613/238-8425.

12. "Car Pool Safety Pamphlet for Parents." For single copy send a long self-addressed envelope and cost of postage to Highway Safety Research Centre, University of North Carolina, CTP 197A Chapel Hill, NC 27514.

13. "Should I Wear My Safety Belt During Pregnancy?", "What Can Happen To A Child Held In Your Arms"? One page illustrated sheets. Michigan Office of Highway Safety Planning, 7150 Harris Drive, General Office Building, Lansing, Michigan 48913. 517/322-1942.

14. "Car Safety Fact Book", 20-page booklet with detailed information concerning the choice of seat, tether strap installation, child safety for all ages and a shopping guide for CRS.

    "Whenever Children Are Passengers", safety in car pools and fieldtrips.

    "What Can We Do To Help Protect The Children?" "Loan a Seat for Safety", Manual on loaner programs. Activities for professionals and volunteers to become involved in promoting safe transportation.

    Office of Highway Safety Planning, 7150 Harris Drive, General Office Building, Lansing, Michigan 48913. 517/322-1942.

15. "Travel With Baby". Comprehensive booklet concerning the whole aspect of child safety in cars and travel tips. Cosco/Peterson, Kidde Recreation Products, 543 Conestoga Blvd., Cambridge, Ontario. 519/623-9680.

16. "Keep Them Safe" English and French. Transport Canada, Road and Motor Vehicle Traffic Safety Directorate, Tower "C", Place de Ville, Ottawa, Ontario K1A 0N5. (613) 996-2505.

Posters

1. "Life Is Precious. Buckle Us In", 18 x 24 full colour. Infants and children photographed in restraints. English/French. Ministry of Health, Health Information Centre, 9th Floor, Hepburn Block, Queen's Park, Toronto, Ontario M7A 1S2. Ministry of Transportation and Communications, 1st Floor, West Tower, 1201 Wilson Avenue, Downsview, Ontario M3M 1J8. Ministry of Community and Social Services, 7th Floor, Hepburn Block, Queen's Park, Toronto, Ontario M7A 1E9.

2. "Alberta Action Committee for Child Transportation Safety — A Program for Protecting Our Children While Riding in Motor Vehicles". A copy of an excellent diagramatical poster display, especially useful for community groups. Education Coordinator, Community Health Sciences, University of Calgary, 3330 Hospital Drive N.W., Calgary, Alberta T2N 4N1.

3. "You can always buy a new car, but your children are one-of-a-kind. Protect them". Action for Child Transportation Safety, P.O. Box 266, Bothwell, WA 98011.

4. "Your Baby is Breakable. . . Use Safe Infant Car Seat" "A Shot and A Seat. . . Care Enough to Give 'em Both", Film Loops Inc. Hearing Systems, P.O. Box 2233, Princeton, N.J. 08540. 609/466-9000.

5. "It's Your Child's Life..But It's Your Decision". Series of four posters. University of North Carolina, Highway Safety Research Centre, Chapel Hill, N.C. 27514.

6. "Prenatal Care" (T-6204-B) "Who didn't fasten their safety belts" (T-6184-B) "You May Live.. But Life Will Be Different" (T-6188-B). National Safety Council, 444N Michigan Avenue, Chicago, Illinois 60611. 312/527-4800.

7. In English and Spanish. Explains features of Cosco/Peterson seats. Kidde Recreation Products, 543 Conestoga Blvd., Cambridge, Ontario. 519/623-9680.

8. "Because we love them so. . .", 11" × 17" colour poster, English and French, available from: Suzanne Monange, Québec Safety League, 6785, ouest, rue St-Jacques, Montréal, Québec, H4B 1V3. (514) 482-9110.

Bibliography

1. "Early Rider Series". National Highway Traffic Safety Administration, NAD-42 400 7th Street S.W., Washington, DC 20890. 202/426-0874.

   a) DOT HS 805 056 Loan a Seat. How to establish and operate an Infant and Child Restraint Loan Program.

   b) DOT HS 805 057 Early Rider Fact Book. Detailed look at currently (Nov. 1979) marketed infant and toddler automobile safety restraints.

   c) DOT HS 805 060 Early Rider Educational Curriculum. The Health professional's role in protecting the child passenger.

   d) DOT HS 805 176 Early Rider Shopping Guide to infant/child automobile restraints.

2. "Resource Manual" — consists of installation instructions and consumers guide to all child auto equipment presently available in Canada, answers typical questions, suggested speech topics, background research papers. Saskatchewan Safety Council, 348 Victoria Avenue, Regina, Saskatchewan S4N 0P6. 306/527-3197.

3. Child Passenger Safety Program. State of Tennessee. Governor's Highway Safety Program, Nashville, Tennessee. There are 11 reports on the following subjects:

   a) The Tennessee Child Passenger Safety Program;

   b) The Impact of a Child Passenger Restraint Law and a Public Information and Education Program on Child Passenger Safety in Tennessee;

   c) Development of Materials and Public Relations Efforts to Promote Child Passenger Safety;

   d) Use of Telephone Surveys to Determine Awareness of Tennessee's Child Passenger Protection Law;

   e) Organizational Networks for Promoting Child Passenger Safety;

   f) Judicial Perspectives on Child Passenger Protection Legislation;

   g) Enforcement of the Child Passenger Protection Law;

   h) Development of Child Passenger Safety Component for Driver Education Programs;

   i) Parent's Knowledge, Attitudes and Behaviour About Child Passenger Safety;

   j) Child Restraint Device Loaner Programs; and

   k) Compliance with the Child Passenger Protection Law: Effects of a Loaner Program for Low-Income Mothers.

4. Christopherson, E.R. "Children's Behaviour During Automobile Ride: Do Car Seats Make a Difference?" Pediatrics, Vol. 60, No. 1, July 1977, pp. 69-74.

5. Miller, J.R. and Pless, I.B. "Child Automobile Restraints: Evaluation of Health Education". Pediatrics. Vol. 59, No. 6, June 1977, pp. 907-911.

6. Reisinger, K.S. and Williams, A.F. "Evaluation of Three Educational Programs Designed to Increase the Crash Protection of Infants in Cars". Washington, D.C., Insurance Institute for Highway Safety, Oct. 1977.

7. Greenberg, L.W. and Coleman, A.B. "Seat Belt Use and Automobile Safety Counselling by Pediatricians", Southern Medical Journal, Vol. 74, No 10, Oct. 1981, pp. 1172-1174.

8. "Child and Infant Restraints" — a subject bibliography (including abstracts), obtainable from the National Highway Traffic Safety Administration, NAD-42, 400 7th St. S.W., Washington, DC 20590, June '79.

9. Shelness A. and Charles S., M.D. "Children as Passengers in Automobiles: The Neglected Minority on the Nation's Highways", Pediatrics, 56:2, Oct. '75.

10. Scherz R.G. "Restraint Systems for the Prevention of Injury to Children in Automobile Accidents", American Journal of Diseases of Children, Vol. 66, No. 5, May '76.

11. Williams, A.F. "Observed Child Restraint Use In Automobiles", American Journal of Diseases of Children, Vol. 130, Dec. '76.

12. Williams A.F., Ph.d. "Warning: In Cars, Parents May Be Hazardous To Their Children's Health", Insurance Institute for Highway Safety, April '78.

13. Robertson, L.S., Ph.d., and Williams, A.F. Ph.d. "Some International Comparisons of the Effects of Motor Vehicle Seat Belt Use and Child Restraint Laws"

14. Melvin, J.S. Ph.d., et al "Protection of Child Occupants In Automobile Crashes", 22nd Stapp Car Crash Conference, Oct. 24-26, 1978.

15. McDonald, Q.H. "Children's Car Seat Restraints: When Top-Tether Straps Are Ignored, Are These Restraints Safe:", Pediatrics, 64:6, Dec. '79.

16. J. W. Melvin, K. Weber "Investigation of the Performance Of Child Restraints in Serious Crashes", P. Lux, May '80.

17. Williams, A.F., Ph.d., and Wells, Joann K., B.A. "The Tennessee Child Restraint Law in its Third Year", American Journal of Public Health, Vol. 71, Feb. '81.

18. Reisinger, K.S., M.D., et al "Effect of Pediatricians' Counseling of Infant Restraint Use". Pediatrics, Vol. 67, No. 2, '81.

19. Melvin, John W. "Developments in Infant and Child Occupant Restraint Systems in the United States", University of Michigan, Highway Safety Research Institute, Ann Arbor, Michigan, U.S.A.

20. Roberts, Gene "Child Passenger Protection — The Tennessee Enforcement Strategy", Tennessee Department of Safety, Nashville, Tennessee, U.S.A.

21. Shiels, Carl A. "Saskatchewan Kids Get Belted", Traffic Safety Programs, Highway Traffic Board, Regina, Saskatchewan, Canada.

22. Verreault, René "Enquête sur l'usage de sièges d'enfants et de la ceinture de

sécurité en automobile chez les enfants", Mémoire de maîtrise en sciences (épidémiologie), Université McGill, December 1978.

23. Stulginskas, Joan V. "Les sièges d'auto pour enfants", Montreal Children's Hospital Research Institute, McGill University, April 1982.

Some Manufacturers/Distributors Of Child Restraint Seats

1. Alkot Industries Inc.: (Love seat)
   361 Alden Road
   Markham, Ontario, Canada
   L3R 3L4 416/474-0101

2. Bo-Peep Nursery Products: (Hi-Rider)
   101 Portland Street
   Toronto, Ontario, Canada
   M8Y 1B1 416/252-7787

3. Kidde Recreation Products:
   (Cosco/Peterson)
   543 Conestoga Blvd
   Cambridge, Ontario, Canada
   N1R 6T4 519/623-9680

4. Dorel Co. Ltd: (Safe-T-Ryder)
   4610 Rue Forest Street
   Montreal North, Quebec, Canada
   H1H 2P3 514/323-5701

5. Storkcraft: (Strolee)
   11511 Number Five Road
   Richmond, British Columbia, Canada
   V7A 4E8 604/274-5121

Life is Precious.
Buckle Them In.

8. people to contact

People To Contact

Further information on the availability of the film "Life is Precious. Buckle Them In" and on infant and child restraint loaner programs can be obtained by contacting your provincial, territorial or federal representative listed below:

British Columbia

J.F. Phillips
Director of Administration and Safety
Motor Vehicle Department
Ministry of Transportation and Highways
2631 Douglas Street
Victoria, British Columbia
V8T 5A3 (604) 387-3141

Steve Rybak
Transport Canada
9th Floor, Pacific Centre Building
700 West Georgia Street
Vancouver, British Columbia
V7Y 1E1 (604) 661-3175

Alberta

A.D. Cherwenuk
Assistant Director, Engineering
Alberta Transportation, Safety Branch
2nd Floor, Boardwalk Building
10220B — 103 Street
Edmonton, Alberta
T5J 0Y8 (403) 427-7910

John H. Read, M.D.
Alberta Action Committee for
Child Transportation Safety
University of Calgary Injury Research Unit
Health Science Centre
3330 Hospital Drive N.W.
Calgary, Alberta
T2N 4N1 (403) 284-5041

Bill Almolky
Transport Canada
Room 1022, Federal Building
9820 — 107 Street
Edmonton, Alberta
T5K 1G3 (403) 420-3810

Saskatchewan

A. Carl Shiels
Director
Safety and Public Relations Branch
Saskatchewan Highway Traffic Board
12th Floor, SGI Building
2260 — 11 Avenue
Regina, Saskatchewan
S4P 3V7 (306) 565-5318

Beckie Mertick
Transport Canada
106-2050 Cornwall Street
Regina, Saskatchewan
S4P 2K5 (306) 359-5036

Manitoba

C. Procuik
Registrar of Motor Vehicles
Motor Vehicle Branch
Department of Highways & Transportation
1075 Portage Avenue
Winnipeg, Manitoba
R3C 0S1 (204) 775-0281

Maureen Hilditch
Transport Canada
P.O. Box 8550
125 Garry Street
Winnipeg, Manitoba
R3C 0P6 (204) 949-3152

Ontario

Public & Safety Information Branch
Ministry of Transportation and Communications
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8 (416) 248-3501

Ontario Safety League
82 Peter Street
Toronto, Ontario
M5V 2G8 (416) 593-2670

Ian Taylor
Transport Canada
Suite 300, 4900 Yonge Street
Willowdale, Ontario
M2N 6A5 (416) 224-3444

Grant Smith
Road and Motor Vehicle Traffic
Safety Directorate
Transport Canada
Place de Ville, Tower "C"
Ottawa, Ontario
K1A 0N5 (613) 992-0077

Québec

Service de diffusion des
documents audio-visuels
Ministère des Communications
7e étage — 600, rue Fullum
Montréal, Québec
H2K 4L1 (514) 873-7391

Service de diffusion des
documents audio-visuels
Ministère des Communications
1601, boulevard Hamel ouest
Québec, Québec
G1N 3Y7 (418) 643-5168

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Richard Lessard
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Room 212, 2 Place Québec
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New Brunswick

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Public Safety Coordinator
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and Public Safety
Department of Transportation
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5th Floor, York Tower
Fredericton, New Brunswick
E3B 5H1 (506) 453-3645

Doug McGurk
Transport Canada
P.O. Box 42
1081 Main Street
Moncton, New Brunswick
E1C 8K6 (506) 388-7314

Nova Scotia

G.L. Allen
Director
Highway Safety and Field
Programmes Division
Registry of Motor Vehicles
Department of Transportation
6061 Young Street
Halifax, Nova Scotia
B3J 3E7 (902) 424-4250

Reg Towers
Transport Canada
P.O. Box 1013
46 Portland Street
Dartmouth, Nova Scotia
B2Y 4K2 (902) 426-3589

Prince Edward Island

R.I. Jenkins
Director
Highway Safety Division
Department of Highways & Public Works
P.O. Box 2000
193 Grafton Street
Charlottetown, Prince Edward Island
C1A 7N8 (902) 892-5306

Newfoundland

George Jerrett
Motor Vehicle Safety
Department of Transportation
Viking Building
Crosbie Road
St John's, Newfoundland
A2C 5T4 (709) 737-2521

Mary Plaskin
Transport Canada
P.O. Box 1300
Southside Road
St John's, Newfoundland
A1C 5N5 (709) 772-4320

Northwest Territories

Registrar of Motor Vehicles
Department of Government Services
Government of the Northwest Territories
Yellowknife, Northwest Territories
X1A 2L9 (403) 873-7406

Yukon Territory

Registrar of Motor Vehicles
Motor Vehicles Branch
Department of Consumer & Corporate Affairs
Government of Yukon
P.O. Box 2703
Whitehorse, Yukon Territory
Y1A 2C6 (403) 667-5811